THE CHICAGO

MEDICAL JOURNAL AND EXAMINER.

VOL. L. FEBRUARY, 1885. No. 2.

TRANSLATIONS.

THE APPLICATION OF COCAINE TO THE EYE AS AN ANÆSTHETIC. *By* DR. KARL KOLLER, *House Physician to the Allgemeines Krankenhaus of Vienna.** *Translated for the* CHICAGO MEDICAL JOURNAL AND EXAMINER *by* BOERNE BETTMAN, M. D., *Chicago.*

The object of this paper will be to report the results of some experiments relating to the anæsthesia of the eye. This is certainly not the first communication I have furnished on this subject; I sent an essay to the Convention of German Oculists, which met in Heidelberg, September 15–16, 1884, in order to claim priority.

Dr. Brettauer, of Trieste, had the kindness to make known my communications to the convention and demonstrated my experiments, which have been repeated and verified quite often in different places in Germany.

That cocaine, the alkaloid contained in the leaves of the Erythroxylon Coca, possesses the characteristic of anæsthetiz-

*Paper read in the K. K. Society of Physicians, October 17, 1884.

ing the mucous membrane of the tongue upon local application, is a fact discovered in 1859, by Nieman, the scholar of Wöhler. Its powers were made known to us in 1862 by Professor Schroff, who made mention of it for the first time in a paper read before this very Society.

It is furthermore known that cocaine diminishes the caliber of the peripheric blood vessels, by way of the circulatory system, as is also known that cocaine produces dilatation of the pupil by the just alluded to manner as well as by local application. The instillation of cocaine into the eye has therefore been demonstrated before, but those symptons which will form the main object of to-day's paper have thus far escaped attention.

Experiments made with repeated internal applications of cocaine have been invariably so unsuccessful that the remedy fell into discredit and was eventually forgotten. In 1880, Dr. von Alrep * published an extensive work on his experiments with cocaine, at the end of which he hints at the possibility of cocaine becoming a useful local anæsthetic. My colleague, Dr. Sigmund Freud,† of the "Allgemeines Krankenhaus," of Vienna, brought cocaine into prominence by his thorough compilation and interesting therapeutic work.

I started out with the supposition that a substance which paralyzes the terminations of the sensitive nerves of the mucous membrane of the tongue, would produce the same effect upon those of the cornea and conjunctiva and made a series of experiments in Professor Stricker's laboratory, based on these conjectures. My results were in short as follows:

If a few drops of an aqueous solution of Cocainum Muriat-

*Pflüger's Archiv. f. d. ges. Phys. 21. Bd.

† Centralbl. f. Therapie V. Heitler. August heft, 1884.

icum ‡ be applied to the cornea of a guinea pig, squirrel or dog, or by the ordinary method instilled into the *cul de sac* of the conjunctiva, the animal will wink a short time, presumably in consequence of a slight irritation, but within one-half to one minute will again open its eye, which has gradually assumed a strange staring appearance. If the cornea be now touched with the head of a pin (in order to guard against mistakes care should be taken not to come in contact with the eye-lashes), no reflex closure of the lids will ensue, the eyeball remains immobile, the head is not drawn backwards as would naturally have otherwise followed, the animal remains perfectly quiet, and the application of stronger irritants will prove conclusively that both cornea and conjunctiva are entirely anæsthetized. Thus I scratched and punctured the cornea with my needle and irritated it by means of the induced current, which was so strong that it pained the fingers and was unbearable upon application to the tongue; I cauterized the corneæ with lunar caustic until they became milky white—all this did not elicit the slightest movement from the animal.

The last two experiments convinced me that the anæsthesia affected not only the upper surface of the cornea but the entire substance. But when the cornea was cut into, at the same moment when the aqueous humor escaped and the iris prolapsed, the animal gave vent to lively manifestations of pain. I was unable to determine in my experiments on animals, whether the iris could be anæsthetized by instilling some of the solution into the corneal wound or by continued application into the conjunctival sac instituted for some time previous to the operation; for experiments relating to tests of sensibility on

‡ Cocainum Muriaticum is soluble up to 5 per cent. in water without the addition of acid, but is always opalescent. Addition of acid is to be avoided since the slightest quantity produces a severe burning sensation. The opalescent fluid is rendered perfectly clear upon filtration.

unanæsthetized animals, if only comparatively complicated, are very unsatisfactory.

I furthermore tried to ascertain whether cocaine could induce anæsthesia of an inflamed cornea. This question was decided affirmatively through experiments made on animals on whom I had previously produced a traumatic keratitis, their corneæ were as thoroughly anæsthetized as healthy ones.

The complete anæsthesia effected by a 2 per cent. solution lasts on an average ten minutes.

After these successful experiments upon animals, I no longer hesitated to test its action on the eyes of human beings, and applied it to my own eye, to that of my colleagues, and later on used it on numerous other individuals. All, without exception, testified to the complete anæsthesia of their corneæ and conjunctivæ. The course of manifestations is as follows: if a few drops of a 2 per cent. solution be instilled into the conjunctival sac or allowed to flow over the cornea a slight burning sensation and quite a copious flow of tears will ensue, which ceases in one-half to one minute, to be succeeded by a dull sensation of dryness. To an observer the eye will appear dull, staring, as noted in the animals used for experimental purposes. This expression is due to a decided expansion of the lid fissure, a phenomenon to which I will refer later on. If, now, the cornea be touched with a needle, no sensation either of pain or touch is experienced, even the reflex action fails to appear. The same applies to the conjunctiva, where also the sensation due to change of temperature is counteracted. The conjunctiva bulbi can be grasped with a mouse-toothed forceps without causing the patient the slightest discomfort, or the cornea may be indented with a probe; the only cognizance of this manipulation being indistinct vision, due to the altered curvature of the cornea. This complete anæsthesia lasts from seven

to ten minutes, and gradually passes into the normal state through a long transition stage of diminished sensibility. The pupil begins to dilate about fifteen to twenty minutes after the instillation. The dilatation reaches its maximum during the first hour, diminishes visibly in the second, and a few hours later all traces of mydriasis have disappeared. The dilatation is never maximal, and the pupil reacts promptly to light and to convergence during the entire time, in consequence of which the blending sensation which always accompanies atropine mydriasis is never experienced or is present only in a very moderate degree.

The mydriasis is accompanied by a transitory and slight paralysis of accommodation; in my case and in another individual the near point receded one-half inch.

I have noticed, furthermore, a decided ischaæmia of the normal conjunctiva, especially of the conjunctiva palpebrarum, but am unable to state anything definite regarding its duration. I refrain from mentioning, for the present, certain still undetermined observations, as for instance, those referring to the ophthalmoscopic appearances, but desire to emphasize the fact that the application of cocaine during my entire observations has never been followed by symptoms of irritation.

I regard the dilatation of the lid fissure, which occurs simultaneously with the anæsthesia of the cornea and conjunctiva, due to the loss of sensibility of these parts, rendering them insensible to the irritation which in the normal state affects both cornea and conjunctiva, and which regulates the width of the lid fissure.

There are still a few practical points relating to the anæsthesia which I wish to emphasize:

1. The anæsthetic action of cocaine can be augmented; if, on the abatement of the anæsthesia, cocaine be newly instilled

a second anæsthesia is induced, which lasts longer than the first. In this way I have obtained complete anæsthesia, lasting from fifteen to twenty minutes, by repeating the instillation every five minutes for a certain time.

2. The anæsthetic action is a purely local one.

3. Since it is known that cocaine is absorbed, and on every instillation a small amount enters the eye, at first into the anterior chamber, one might surmise that also the more remote parts of the eye would be anæsthetized if it were possible to introduce a large enough quantity of the remedy. But as a certain length of time is requisite for the absorption, and as the duration of the anæsthesia is limited, the numbness of the cornea will already have passed away at the time iris and ciliary body are affected, the cornea will have to be anæsthetized from anew. Both of these demands can be strictly adhered to by a series of systematized and graded applications. Thus I produced a decided diminution of the sensibility of the eye, against strong pressure, after having instilled a five per cent. solution of cocaine, repeated every five minutes for a period of half an hour.

* * * * * * *

Through the extreme liberality of Professor Dr. v. Reuss, director of the clinic of the deceased Jaeger, I have been enabled during the last two or three weeks to test the action of the remedy on inflamed eyes. Dr. v. Reuss, as well as his assistants, Drs. Bochner and Dimmer, furthered my experiments in every respect, for which I express to them my sincere thanks.

My attention was directed from the very beginning to the two therapeutical uses cocaine might be put to: first, to apply it as a narcotic in painful diseases of the eye, and, second, as an anæsthetic in operations on that organ.

I expected very good results from its action with reference to the first mentioned usage, especially in corneal and conjunctival ailments, combined with pain and photophobia. I have, in fact, employed cocaine (in a two per cent. solution) on a number of patients afflicted with conjunctivitis lymphatica, with eruptions and ulcers of the cornea, and also on a patient with fasicular keratitis. All patients treated in this manner expressed a few moments after the instillation an amelioration of their subjective condition, pain ceased and photophobia decidedly diminished. But they as unanimously complained of the return of the annoying symptom two and three hours after the application of the remedy. It is reasonable to expect, however, a complete cessation or at least a diminution in intensity of the pain and photophobia upon continued application of the solution. This mode of procedure could not, as yet, be carried out.

I obtained similar results when used on a man with painful erosions of the limbus.

In like manner I would promise myself happy results from its power to influence pain in iritis, having proven, as I think, that the anæsthetic action of cocaine extends in a certain degree to the iris and corpus ciliare.

The mydriatic action, owing to its insignificance, would not come into play here; still, we might expect the cocaine to influence the pathological process by virtue of its power to diminish the caliber of the blood vessels. Perhaps its combination with atropine treatment might prove of avail. Unfortunately the opportunity has not yet presented itself to test its efficacy in this disease.

The pain, also, consequent to the cauterization of the lids with nitrate of silver, may, by previous instillation of cocaine, be entirely controlled or at least very much influenced. The ma-

jority of patients subjected to this experiment stated that they felt no pain; in a few, pain returned after a short period, but was again immediately controlled on renewed employment of the solution. A lady patient remarked that the pain was less intense than usual, but lasted longer.

My experience regarding the use of cocaine in connection with sulphate of copper treatment is limited and to a certain extent contradictory; at any rate it would have to be applied in this connection in a much stronger solution than in cauterization with nitrate of silver.

I will now consider the second applicability of cocaine, namely, as an anæsthetic in operations on the eye.

Cocaine can be put to excellent service in the removal of foreign bodies from and out of the cornea, which procedure is usually rendered difficult by the restlessness of the patient. In the great majority (about thirty cases) of so afflicted individuals I induced the anæsthesia as follows: I dropped onto the cornea of the patient, who was either sitting or standing and looking to the ground, two drops of a 2 per cent. solution; this I repeated 3–5 minutes later. All kept their eyes perfectly quiet during the digging out of the foreign body from the cornea, and when questioned as to their sensations, replied that they had felt absolutely nothing.

Cocaine was applied with the same good results in a case of tattooing of corneal scars and in a pterygium operation.

Good effects might be expected from the use of cocaine in the cauterization of corneal ulcers with a hot iron, also in cases of *punctio corneæ* and *discissio cataractæ*. Both of the last mentioned operations, which in fact consist in the fixation of the conjunctiva and puncturing the cornea, can be made, as my experience upon animals and human beings have taught, without provoking pain.

Dr. von Reuss did a staphyloma operation upon a boy and girl aged 7 and 8 years, not narcotized, but anæsthetized with cocaine. The children kept perfectly quiet and experienced no discomfort whatever.

Dr. von Reuss was kind enough to permit me to apply cocaine in several cases upon whom iridectomies and cataract operations were done. Upon the whole I would remark concerning the above that in all these cases no irritation followed its employment, which invites to further experimentation. The experiments were followed by diverse and more or less satisfactory results, according to the strength of the solution and the method of its application. The best, indeed almost perfect results were obtained in those cases where the following method of application had been strictly adhered to: during at least half an hour prior to the operation two drops of a 5 per cent. solution is instilled into the eye at intervals of 5 minutes. The patient is placed in a horizontal position, the upper lid is raised, and while he is looking towards his feet the solution is dropped on to the sclerotic above the cornea.

One of the numerous cases thus treated, a woman, upon whom the extraction of a cataract had been undertaken, when asked at each step of the operation as to her sensations, asserted that she was not cognizant of the corneo-scleral section; the grasping and excision of the iris was felt, but produced only slight pain. She reacted to none of the various acts of the operation, neither did a stupid woman, upon whom Dr. von Reuss was loth to operate owing to extreme sensitiveness.

The following case, owing to the peculiar circumstances, is worthy of interest.

A man with seclusio pupillæ of both eyes was iridectomized on the left eye, after cocaine instillation. The man was perfectly quiet during the operation and stated that he had felt

nothing of the corneo-scleral section (made with a lance-shaped knife). He experienced tactile sensation when the iris was grasped and excised, but no pain. A week later the patient underwent a similar operation on the other non-anæsthetized eye. This time he wriggled and squeezed the eyelids so violently as to render the operation very much more difficult.

Although the great majority of patients upon whom such operations are made are torpid individuals who would anyway bear their pains patiently, the last mentioned case appears to demonstrate that in such cases also an anæsthetic may render good services.

ORIGINAL COMMUNICATIONS.

ARTICLE I.

REPORT OF THREE OPERATIONS OF OVARIOTOMY WITH EXHIBITION OF PATHOLOGICAL SPECIMENS. *By* D. A. K. STEELE, M. D., *President Chicago Medical Society, Professor Orthopedic Surgery College Physicians and Surgeons of Chicago, Etc.**

Gentlemen:—Abdominal surgery is no longer an experimental field. Its brilliant possibilities have become accomplished facts. Doubt and uncertainty have yielded to definite knowledge and precise rules. During the past decade more rapid advancement in operative *technique* with resultant lessened mortality can be claimed in the field of abdominal surgery than in the wider domain of general surgery. To the honored names of Keith, Tait, Thomas, Emmet, and other active workers and writers in this field we desire to add three names from this Society, Jackson, Dudley and Parkes, each of whom by conscientious earnest work has largely aided in Chicago, and the West especially, in advancing and maintaining our knowledge of this subject. And to the latter is due the credit of having written one of the most notable papers presented during the period covered by these preliminary remarks. In presenting reports of three cases of ovarian tumor with operations, I am

* Read before Chicago Medical Society, December 1, 1884.

only adding my mite to the sum total of knowledge in this department, and therefore crave your indulgence while I present:

Case 1. Bridget T., aged 59 years, an English washerwoman, was transferred to my care in the Cook County Hospital, June 14, 1880.

Four days previously she was admitted to the Medical Department under the care of Dr. H. P. Merriman, who diagnosed an ovarian cyst. Her family history was interesting from the fact that two older sisters had died of "dropsy," one in the 40th and the other in her 70th year. Father attained an age of 80 years, and her mother died in her 63d year from some lung affection. Mrs. T. did not menstruate until her 20th year. This function continued regularly every four weeks until she was 45, when the menopause occurred without any disturbance of her general health. Her periods had always been painless and lasted two or three days—flow normal in amount.

She was married in her 26th year, but has never been pregnant; enjoyed widowhood for the past 21 years. Has always had excellent health with the exception of an attack of bilious remittent fever about 30 years ago. Was sick a few days "during the war" with "liver complaint," and again about five years ago was in bed a few days with a similar complaint.

In May, 1879, fourteen months prior to her admission to the hospital, she noticed a slight protrusion of the navel, and a few days later noticed a small hard lump as large as a guinea egg in the left illiac region. This seemed hard at times, and again soft; sometimes giving a sensation of heat, and again of cold. This has gradually increased in size until the abdominal cavity was completely filled. Has never experienced any pain in the growth. Frequent micturition with partial incontinence has annoyed her for the past four or five months.

On admission she was fairly nourished; tongue clean, appe-

tite fair, stomach acid, but no nausea or vomiting; bowels regular; pulse 72, respiration 18, tempeaature 98°. *Facies ovariana* fairly marked.

Examination revealed abdomen uniformly enlarged, overlapping ilia and pubes; superficial veins unusually enlarged; girth of abdomen at umbilicus forty-six inches. Manipulation shows enlargement to be firm, resistant and elastic, universally dull and fluctuating, except over an area one and a half inches above navel; line of dullness changes slightly by postural change. No well defined cyst can be outlined by palpation. Vagina is long and narrow; uterus small, atrophic, and drawn upwards. No bulging of Douglas' *cul de sac*. Evidently considerable free ascitic fluid and probably an ovarian cyst.

June 18th, in order to perfect the diagnosis, an attempt was made to draw off the fluid by means of a trocar so as to allow the tumor to be outlined; but unfortunately the cyst was punctured. Thirteen and a half pounds of thick straw-colored fluid were removed; specific gravity, 1011; alkaline reaction, highly charged with albumen, contains Drysdale's cell, cholesterin, epithelium, etc.

Patient was immediately placed in bed, on her back, and kept quiet for three days to prevent fluid escaping from cyst into abdominal cavity. No symptoms followed tapping, and she was around the ward in a few days. The cyst rapidly refilled, and ten days later its firm thick-walled outline, lying chiefly on the right of mesial line, could easily be felt. Lateral motion, on raising it up, transmitted a similar motion to the uterus.

An operation for its removal was decided upon, and she was placed for a week upon preparatory treatment, consisting of a light farinaceous diet, with daily hot baths, frictions and diuretics.

Day before operation she was given milk porridge, a cathartic and hot water vaginal injections, and on the morning of operation an enema of soap-suds.

July 11th, at one P. M., she was etherized for abdominal section. The room in which this operation was to be performed was a private one on the third floor of the west pavilion, and had been thoroughly fumigated, walls washed clean with antiseptic solution and a carbolized spray maintained for two or three hours, temperature brought up to 80°.

The operation was done with the assistance of Drs. C. T. Parkes, Fenger, Jackson, Guerin, McWilliams and the house staff. Some ten or twelve other physicians being present by invitation. The usual incision in the *linea alba* was made, cyst punctured and thick straw-colored fluid drawn off through a Wells trocar; but few adhesions were found, and the cyst which developed from the left ovary was readily drawn out, a temporary fish line ligature applied and the cyst cut off. The right ovary was unaffected—the pedicle was drawn up and tied in three parts by a strong carbolized silk ligature cut short and dropped back. The abdominal cavity was carefully sponged out with fine carbolized sponge to which long strings had been attached in order to guard against the possibility of dropping one—the string was held by an assistant. A good deal of the cystic fluid had escaped into the cavity, and considerable time was occupied in thoroughly sponging it out. A flat sponge was then laid beneath the edges of the abdominal incision, and it was closed by interrupted silk sutures and a complete Lister dressing applied. Patient placed in bed between blankets, surrounded by bottles of hot water and given hypodermic of brandy. Operation lasted nearly two hours. Patient reacted well and made favorable progress for forty-eight hours, when

symptoms of pyæmia supervened and death ensued on the fifth day.

A post-mortem examination revealed a small sponge with string attached lying in Douglas' *cul de sac* by the side of stump, and firmly imbedded in lymph. The ligature was embedded in lymph and no hæmorrhage had occurrred. There was a general peritonitis, and one or two pouches containing ill-smelling pus. The cause of death was apparent; but how it was possible to have overlooked the sponge when the final inspection of peritoneal cavity was made, remains a mystery and adds increased weight to the command, "Always count your sponges."

The cyst was a multilocular one, which, with its contents, weighed twenty-nine pounds. I feel certain that but for the accidental presence of a foreign body in the peritoneal cavity, she would have recovered.

Case II.—Mrs. Alvina S., aged thirty, a German housewife, was admitted to the Cook County Hospital March 13th, 1882, and gave the following history: Father and mother living and in good health; one sister died at the age of twenty-two from "white janders," excessive anæmia and non-appearance of menses.

Mrs. S. had a healthy childhood; age of puberty at 16; menstruations regularly monthly; duration, three to six days, normal in amount and color, painless. Married at 20.

First child one year later; healthy pregnancy, normal delivery, confined one week. Six weeks after delivery, hæmorrhage, which ceased in four weeks. Regular menstrual flow every two or three weeks since, considerable in quantity; painless; notwithstanding had good health. Dates present illness back to August, 1880, when it began with backache in sacral region, cramping pains from hip to knee occasionally,

constipation, throbbing in epigastrium, variable appetite, slept well, no soreness. First noticed tumor in October, 1880, when she began to grow larger around the waist, and supposed she was pregnant until thirteen months had passed. In December, 1880, she noticed a hard, round tumor in the hypogastrium, which increased in size, at times growing rapidly and then remaining stationary. The tumor gradually increased in size until February, 1882, when she was aspirated below umbilicus and ten quarts of a yellowish, greasy-looking fluid were removed, when the tumor entirely disappeared. Four days later she says she again noticed it filling up; sat up in bed then, and fainted for the first time in her life. Remained in bed for three weeks after the tapping. Has emaciated considerable since February.

Examination after admission revealed abdomen enlarged anteriorly, circumscribed bulging with tense walls, universal fluctuation; no partitions into several sacs; no cicatrix of aspirator puncture visible; umbilicus obliterated; palpation shows a moderate sized ovarian cyst, with an apparently harder mass below and to the right side. Vagina normal, uterus small in normal position. No tenderness on examination. March 20th, she complained of burning pains over right side of abdomen; pulse ran up to 106 and temperature to 103.4°. Pulse and temperature continued high for four days, patient complaining of severe pain over abdomen, especially on right side; said it felt as if tumor was going to burst. She was kept under the influence of full doses of opium and a hot poultice applied, when the local peritonitis gradually subsided. March 24th, I aspirated the cysts, removing six quarts of limpid straw-colored fluid relieving dyspnœa and greatly ameliorating most of the distressing symptoms. On the 28th, pulse and temperature were normal, and on April 10th she was able

to walk around the ward. On the 14th there was a slight recurrence of the peritonitis. On the 16th I re-examined her carefully and diagnosed an ovarian cyst of left ovary and de-decided upon its removal. April 20th, with the same preparatory treatment and the same antiseptic precautions as in the preceding case, I operated, being assisted by Drs. Gunn, Fenger, Guerin, and the house staff. Patient was etherized at 1 P. M. by Dr. F. S. Johnson. I began the operation twenty-three minutes later, anæsthesia then being complete. The incision in mesial line was five inches in length midway between umbilicus and pubes. Different layers of abdominal wall were divided separately until the cyst wall came into view. Numerous recent slight adhesions were found between the cyst wall and the peritoneum. A large trocar was introduced into the cyst cavity and its contents easily evacuated without any portion of the fluid entering the peritoneal cavity. Pedicle was of medium size, springing from left ovary, and was secured by a temporary ligature of whipcord. Patient was now given 30 drops of brandy hypodermatically. Pedicle was now tied in three sections with No. 10 braided silk ligature and dropped back in abdomen after being cut short. Bleeding from points of adhesion was slight, and was controlled by five cat-gut ligatures. Peritoneal cavity was now thoroughly sponged out and a dry, flat sponge introduced, while external wound was being closed. The primary incision was closed by interrupted silver wire sutures, the flat sponge being withdrawn before the sutures were tightened. A double curved glass drainage tube was introduced at the lower angle of wound, resting in Douglas' *cul-de-sac*. Wound was dressed *a la* Lister and covered with salicylated cotton. Operation lasted one hour and thirty minutes, when patient was placed in bed, given hypodermics of whisky and surrounded by hot rubber-bags, and ordered champagne

and ice, catheterized every six hours, and temperature of room to be kept at 75°. Patient reacted well, had considerable vomiting and nausea for the first forty-eight hours, also paroxysmal abdominal pain from movement of intestinal gases, which ceased almost entirely when flatus escaped *per anum* on the third day. On the third day the dressings were removed and changed. The wound was looking well and uniting by first intention. A little odorless serum was drawn out of the glass drainage tube by means of rubber tubing attached to the nozzle of a syringe—was ordered milk and beef tea *per rectum*. On 5th day redressed the wound under spray. No odor and very little discharge about the dressings; wound had united by first intention. Syringe fails to withdraw any fluid from tube. Tube was withdrawn, washed in 3 per cent. carbolized water and replaced. Patients clothing and bed linen also changed. Temperature of room had been gradually brought down to sixty-six. Pulse, temperature and respiration normal and patient permitted to begin taking flour and milk porridge by the mouth. On the seventh day she passed urine naturally for the first time.

Wound was redressed and three of the silver wire sutures removed, and the drainage tube left out permanently. On the tenth day all sutures were removed and the sinus left by drainage tube was found to be rapidly healing. On the eleventh day the bowels moved after an enema quite freely. May 4th the patient sat up in a chair for forty minutes without feeling fatigued. May 12th the wound had entirely healed and a nicely fitting abdominal bandage was applied to support the relaxed abdominal wall.

Summary.—Duration of tumor, since August, 1880, (21 months.) Tapped February 5th, 1882, ten quarts fluid withdrawn. Tapped March 25th, 1882, six quarts fluid withdrawn.

Operation April 20th. Weight of tumor 19 pounds. Highest temperature following, 100.2 (3d day). Temperature continued normal after fourth day. Sat up on 14th day. Discharged recovered on 24th day. Eleven days after she left the hospital her left leg became painful and swollen to twice its natural size by reason of pressure on the illiac vein from plastic deposit around the pedicle. This yielded entirely in a few weeks to rest and bandaging, and she has been perfectly well ever since, menstruating regularly.

Case 3.—Mrs. A. L. M., aged 39 years, a widow, born and always resided in Chicago, mother of seven children, three living, came under my observation September 22d, 1884. I first saw her at my office and elicited the following history: puberty was established at the age of 13, and the flow was always profuse and accompanied with pain. She was married at the age of 17, and conceived four months afterwards. Carrying the child to the full period of gestation, being perfectly healthy. Her labor was very difficult, the child being born double. She was in bed three weeks after her confinement, at the close of which time she sat up, and at the expiration of a month began to go about the house, but was not fully up to her normal condition until eleven months afterward. In one year and eight months after the birth of her first child, she conceived again and carried the child but seven months when she was delivered of a boy weighing three pounds. Child lived eighteen months. Patient thinks she would have carried the child the full term of gestation had it not been for a shock to her system brought on by the death of her mother. She conceived again one year after the birth of her second child (not having had a return of the menses), and a fourth child was born two years afterwards without any indications of the menstrual flow. When nearly five months advanced with her fifth child

she had a discharge simulating the menstrual flow but lasting only one day, after which she saw nothing to indicate a return of the catamenia until after the sixth child was born, in February, 1874. When the sixth child was sixteen months old the menses returned and continued regularly and without pain until she conceived the seventh and last time, October, 1878. After recovering from the last confinement, patient was well until July, 1879, when she experienced severe pain in the left hypochondrium so severe in character as to cause her to consult a physician. All measures taken to secure permanent relief proved futile—the patient growing thinner and weaker until two years ago, when she noticed an unusual fullness of the abdomen just before each menstrual period, and which became less noticeable after the flow subsided. One year ago, when bathing one day, she discovered a swelling in the right side, the dimensions of which were like a large saucer, and which steadily increased in size, giving the patient much discomfort, thus inducing her to again consult a physician, which she did, as previously stated, Sept. 22nd, 1884. She presented at this time a markedly cachectic emaciated appearance, abdomen protruded anteriorly. Prominence was circumscribed to the right of mesial line chiefly, dull on percussion, had a knobby projection and extended down into pelvis, fluctuation being marked. Uterus and vagina normal. Diagnosed a probable multilocular ovarian cyst.

Sept. 24th, two days afterwards, Drs. Jackson and Dickerson saw her, in consultation with me, and confirmed the diagnosis. An operation was advised, and on Nov. 13th the patient entered Dr. Dickerson's private hospital and took preparatory treatment for it. (Hot baths, diuretic, etc.)

Sunday, Nov. 16th, I operated upon her, with the assistance of Drs. Jackson and St. John, and in the presence of Drs.

Earle, Martin, Doering, Byford, Beery, and Messrs. Barlow, Casely and Earle, medical students.

Dr. Dickerson administered the anæsthetic (ether). The temperature of the room was kept at 80°, the air was saturated with carbolized vapor, and the usual precautions of absolute cleanliness observed. At 2:12 the first incision was made, and at 2:57 she was placed in bed, the operation having been fully completed. The primary incision in linea alba was about three inches long, midway between umbilicus and pubes. The tissues were so anæmic that there was no need of using hemostatic forceps, all bleeding points ceased spontaneously a few minutes after the pearly bluish white cyst wall came into view. The cyst was emptied by an Emmet's trocar with tubing attached. No adhesions were found, and the cyst involved the right ovary. The fluid was a dark amber. A temporary ligature of hemp twine was thrown around the pedicle, which was now divided. A cyst of the left ovary, about the size of a fœtal head, now came into view and was emptied by the trocar of ten or twelve ounces of thick, yellow, purulent-looking fluid. This pedicle was also secured by a temporary ligature and cut off. Both pedicles were now secured and tied in two parts by heavy braided silk (No. XI), cut short and dropped back in the abdomen. The peritoneal cavity was now carefully sponged out and rinsed two or three times with warm carbolized water (one per cent.) and sponged dry. No oozing occurred, and no fluid from the cyst was permitted to enter the abdominal cavity. A warm, flat carbolized sponge was now placed beneath the primary incision to absorb any blood that might escape from the needle punctures. The wound was closed by nine interrupted silk sutures and an iodoform dressing applied, covered with salicylated cotton held in place by fine strips of rubber adhesive plaster, and over all a firm flan-

nel binder. Patient's knees were flexed over a firm pillow upon the bed, and after recovering from under the influence of the anæsthetic her pulse was 96; temperature, 98½°; respiration, 22. At no time afterwards did her temperature rise above 100°, or her pulse over 94. She had no vomiting, and absolutely no pain; slept considerable. She was nourished on milk, ice and whisky for the first week, then on milk, porridge, beef tea and animal broth afterwards, no solid food being administered for ten days. No drugs were given. She made a steady rapid recovery without any symptoms to record. Catheter was used every six hours for five days; after that she urinated naturally. Flatus escaped *per rectum* on the second day; bowels were moved by enema on the eleventh day. The dressing was not disturbed until the seventh day, when union was found to be perfect by primary adhesion. All the sutures were removed, the line of union was powdered with iodoform, and a fresh dressing applied. This remained undisturbed until she was able to sit up; occasionally blew a little iodoform under the edges of the dressing by means of an insect powder bellows.

Summary.—Duration of tumor (probably since 1879) certainly since 1883.

Sept. 22d, 1884, ovarian cyst diagnosed.

Nov. 9th, 1884, two ovarian cysts removed; weight, nine pounds.

Highest temperature after operation, 100° (third day.)

She sat up on the thirteenth day, and was discharged recovered on the nineteenth day after the operation. Examination of cysts showed them to be filled with numerous papilliform growths.

The conclusions to be deduced from a clinical study of these three cases may be summarized thusly:

(*a*) Always count your sponges.

(*b*) Absolute cleanliness is more important than absolute Listerism.

(*c*) Peritonitis coëxisting is not a contra-indication for either tapping or operation.

(*d*) Cystic fluid left in peritoneal cavity is dangerous and likely to cause pyæmia; blood is probably innocuous.

(*e*) A rubber blanket with a fenestrum cut in its center through which to operate, and fastened to the belly by a circular adhesive, is useless to prevent the cystic fluid from running over the patient and operating table, as the plaster is usually accidentally pulled off by turning the patient over during a fit of vomiting, or by some over-zealous spectator who seeks to guide the flow of fluid from its folds to the tub or receptacle; better far omit it, and use small tin basins that can be readily changed as needed.

(*f*) Each case calls for special judgment and individual attention to every detail.

ARTICLE II.

THE BACILLI OF SYPHILIS AND HYDRARGYRUM TANNICUM OXYDULATUM.* *By* DR. JOSEPH ZEISLER, *Chicago.*

Mr. President and Gentlemen of the Society:—At the meeting of this society on December 15th, I had the intention to inform you of a new and, as I think, important discovery, but the discussion of Dr. Murphy's paper took so much time that I had not the opportunity to do so. Since that meeting five weeks have passed, and I really do not know that I can give you anything new to-night, supposing that most of you have

*Read before the Chicago Medical Society, January 19, 1884.

read about it in medical journals. But I would not like to disappoint the programme of the evening, and so I shall make some remarks on the Bacillus of Syphilis.

At the meeting of the Vienna Medical Society on November 21st, Dr. Sigmund Lustgarten made a preliminary communication on specific Bacilli of Syphilis, and I think it best to give you a translation of it.

"The great importance of the subject, the peculiar character of the results obtained by me, as also the unanimous and concurrent opinion of eminent physicians, such as Koch and Weigert, and the desire to establish my claim to priority, have induced me, notwithstanding the small number of investigated cases, to give an account of the same.

"I have succeeded in showing, in microscopical sections of two syphilitic chancres and one syphiloma, bacilli, which are perfectly characterized by their color, reaction, form and relative position. These bacilli, which have been found in all of the examined sections, although in slightly varying quantity, represent slim, straight, or somewhat curved little rods of about the same size and the same appearance as the bacilli of tuberculosis. They are always found either single or in small groups, inclosed in lymphoid, somewhat distended cells, and show under a powerful microscope light spots similar to those which Koch regards as "spores" in the tubercle-bacilli. The method of coloring, about which I shall report in a future and more exhaustive paper, makes it possible to distinguish the bacilli of syphilis both from the bacilli of lepra and tuberculosis and from all other pathogenic bacteria as yet known. The fact that the former always are inclosed in cells excludes the possibility of deceptions by putrid formations, and so on. I never could observe anything like cocci, and I emphasize this, because a number of investigators (deceived by more or less important errors) have regarded them as specific microorganisms of syphilis (as Birch-Hirschfeld, and others).

"I refrain, for the present, from speaking of any ætiological

relation of the described bacilli to syphilis, only desiring to state the fact of my microscopical results."

Thus far Lustgarten.

Now, gentlemen, the mistakes of Finkler and Prior, in Bonn, in regard to the claimed identity of the bacilli of cholera nostras to cholera asiatica ought to be a warning example, to prevent rash conjectures. Likewise you certainly will remember that Lostorffer, in Vienna, about fifteen years ago, thought that he had found characteristic micro-organisms in the blood of syphilitic individuals, which he called "Syphilis Körperchen," corpuscles of syphilis, but which afterwards were found in lupus and even in normal persons.

But from long personal acquaintance, I know Dr. L. as a thoroughly scientific and very sceptical investigator; he has spent the greater part of the last year in the laboratory of Prof. Weigert, in Leipsic, and surely he has also made the pure cultures of the new bacillus; at all events the confirmation by the great master, Koch, is important enough to banish our doubts. As to the importance of the new discovery, I think you will agree with me that it perhaps exceeds that of the cholera bacillus, as syphilis is a disease of such general occurrence, and not of an epidemic character.

Dr. Sigmund Lustgarten has also introduced into the practice a new remedy against syphilis, *hydrargyrum tannicum oxydulatum.* It is nearly a year ago that the first trials with it were made at Prof. Kaposi's clinic for skin diseases, in Vienna, and the results showed, as you will see further on, that it was accompanied by some remarkable advantages. It is already quite often used in Germany, and Dr. Görges, in a paper on the present state of treatment of syphilis, read before the "Gesellschaft für Heilkunde," in Berlin, as well as Professor Auspitz, in his introductory lecture in his clinic for syphilis, in

Vienna, mentioned it as a very useful preparation. But as far as I could learn, till now, very little notice of it has been taken in this country, and Messrs. Shering and Glatz, in New York, who have the privilege of selling it in the United States, told me that as yet there has been no demand for it. I think, therefore, that a short reference to it and its properties will not be without interest to the profession.

It would surpass the limits of my paper to begin here with even a condensed review of the present state of the treatment of syphilis. Nor do I deem it necessary to state that mercury is now generally regarded as possessing specific effects against that disease. As to the different ways of introducing mercury into the human body, I think that the old method of frictions will still for a long time maintain its position and extended use, though now mostly regarded as quite unscientific and rather barbarous.

The great progress which has been made by the subcutaneous application of mercurial solutions is surely invaluable in spite of the disadvantages combined with it.

Still, there are very many cases where both methods are not practicable, and where we prefer the internal treatment. The largest use in this direction was made till now by the Protoioduretum of Hydrargyrum, first recommended by Ricord, by calomel and by sublimate. But all of them answer very unsatisfactorily the purpose which we expect and demand of them, that is, a rapid absorption into the circulation without disagreeable effect. I think, in both regards, the *hydrargyrum tannicum* is more valuable than all other preparations.

The remedy referred to is the tannate of the protoxide of mercury; it is a dull green powder without odor or taste, and is only soluble when decomposed. Hydrochloric acid makes no sensible impression upon it; by nitric acid it is easily dis-

solved with a brown color. Very dilute alkalies, ammonia, solution of caustic potash and the alkaline carbonates, reduce it in a short time to a sort of magma composed of very small particles of metallic mercury. They are so minute that the greater part of them present, under the microscope, the phenomenon known as molecular movement. This process of reduction is produced under the influence of the alkaline reaction of the intestinal juices, and it is more than probable that the absorption of the particles of mercury in the intestines is produced in a similar way as on the skin by mercurial frictions; it might also be regarded as an analogous to the absorption of fat, which also takes place after the fat has been transformed into a state of emulsion.

By all means the rapid resorption into the system is proved by an abundant mercurial precipitate in the urine short time after introducing it. This can easily be understood, as the new preparation contains about 50 per cent. of metallic mercury.

The remedy was tried in nearly all forms of syphilis, either recent eruptions or inveterate, in papular, pustular and gummous syphilides. Dr. Lustgarten has reported about twelve of these cases in Nos. 11 to 14 of the *Wiener Medizinische Wochenschrift;* I have seen all of them, being at that time at Kaposi's clinic as assistant. I can confirm that in all of them a rather surprising result was obtained, even in those cases of relapse of a very rebellious nature, as syphilides with small papules and pustules. Six of those cases were primary eruptions, among which two syphilides with small papules and one with large papules and pustules; three other cases were relapses of secondary syphilis, and three were gummous forms. In two of these latter cases local applications of mercurial plaster were made, according to the fact that in such cases local and constitutional treatment work together in harmony. But in

all of the remaining cases no other remedy was prescribed, and sometimes when a patient had some experience in that disease, we prescribed frictions with an indifferent ointment, in order to detain him in the clinic for the purpose of study. Already seven to fourteen days after the preparation had been used, a rapid regression of the lesions ordinarily could be observed, and after three or four weeks all were cured.

In this city I had only one opportunity to use it. It was in a young man, H. G., about 25 years old. Chancre in last June; six weeks later roseola. He said that he had been treated by internal and external remedies, at last by zinc ointment (!). When I first saw him on Sept. 13th, I found a very largely diffused maculo-papular syphilide. I recommended mercurial frictions, and immediately wrote to New York to get the *hydrargyrum tannicum.* From September 19th until October 5th he took three decigrammes of the preparation every day; on the latter date the eruption had entirely disappeared; only a few pigment spots could be seen. No symptoms of mercurial intoxication could be observed. I ordered him to continue the use of the salt, and on November 2d I discharged him as cured.

The new drug has been prescribed in doses of one decigramme (about one and a half grains) with four parts of sugar, two to three times a day, one hour after meals; this latter in order to avoid direct irritation of the mucous membrane of the mouth. An addition of alkaline carbonates, as well as larger quantities of mineral waters containing such salts, should be avoided, as these would decompose the salt. Also the use of iodide of potassium is not good, because larger masses of iodide of hydrargyrum could be formed.

It is remarkable that disagreeable symptoms of mercurial intoxication—stomatitis and salivation—as so often seen in case

of other preparations, never followed the use of this salt; only in one case could we see a swelling of the gums. A disagreeable influence on the intestines, the gravest of all objections to other internally used mercurial preparations, did not make itself felt, even when the hydrarg. tann. was taken for weeks, and in that seemingly large dose of four decigrammes daily. The digestion was always undisturbed; the action of the bowels regular. This can be explained partly from the decomposition of the salt by the intestinal juices, partly from the presence of tannic acid. Still, the hydrarg. tann. should only be given when all organs of digestion are in a normal condition. In order to avoid a possible irritation of the intestines, Lustgarten recommended to add to each dose five centigrammes of tannic acid, or one-half centigramme of opium.

I do not think the new drug will produce quite a revolution in the treatment of syphilis, but the effects as yet noticed are so remarkably good that the new method deserves to be placed by the side of the best methods hitherto employed. To treat that disease, I should be glad if some of you would try the drug and report about it at some future date. As I mentioned, it can be procured of Messrs. Shering & Glatz, in New York, and Mr. Sargent of this city has ordered it at my instigation.

125 State Street.

ARTICLE III.

MANGANESE AS AN EMMENAGOGUE.* *By* FRANKLIN H. MARTIN, M. D., *Chicago.*

Ringer and Murrell, of London, in a little article (*Lancet*, Jan. 6, 1883) called the attention of the profession to gratify-

*Read before the Chicago Medical Society, January 5, 1885.

ing results obtained in experiments performed by them in the treatment of amenorrhœa by the salts of manganese. Since then I have taken advantage of every opportunity afforded me in dispensary and private practice to satisfy myself as to the action and efficacy of the new remedy in this direction. I published the results of my first investigations in the *New York Record*, Sept. 29th, 1883.*

Since the publication of that article I have continued my investigations with considerable zeal and now wish to give additional testimony confirming the efficacy of the remedy as a menstrual stimulant.

I have found that manganese will not only relieve certain forms of *amenorrhœa* but will also relieve forms of *menorrhagia* and *metrorrhagia*. As these several conditions, AMENORRHŒA, menorrhagia and metrorrhagia, are dependent upon so many different causes, it is very necessary for us to discriminately point out the exact conditions in which manganese is indicated. Ringer and Murrell in recommending manganese for amenorrhœa neglected to point out with explicitness the peculiar forms of amenorrhœa in which they found their remedy to exert its greatest influence.

" From my observation I have been led to consider manganese in any form a direct stimulant to the uterus and its appendages. It may exert this influence by acting as direct vasomotor nerve stimulant to the vascular system of the parts, and in consequence of the improved circulation directly increase the tone and nutrition of the organ, as it may exert its whole force through stimulation of the sexual nerve ganglia, or even possibly the sexual nerve centers, thereby bringing the organs to their normal state of action." At any rate its action is

*When not otherwise indicated, quotations in this article are from my article on manganese that was published in the *New York Record*, Sept. 29th, 1883—M.

prompt, and direct in bringing the uterus and appendages to a normal state of menstrual tonicity, when the lack of tone is dependent upon some previous depression of innervation.

It will be seen by the following typical cases, that even when the cause of the depressed innervation is still acting, this remedy will exert its stimulating power over the menstrual mechanism. A young woman, eighteen years of age, in consequence of phthisis had not menstruated in four months. Experimentally I gave her manganese. Menstruation occurred within a week. "Another young woman, twenty-four years of age, with an aggravating digestive trouble of some years' standing, had become very irregular—flowing profusely for a week or two, then scantily for an equally irregular time, again followed, perhaps without warning, by a profuse flow or as likely a complete cessation. This state of affairs had been going on for more than a year. There was no dysmenorrhœa. She was very weak and anæmic from the effects of indigestion and loss of blood. This patient was given two grains of the permanganate of potash dissolved in one-half glass of hot water every night on retiring. It was kindly received in this way by the irritable digestive organs. In a very short time there was a decided improvement in the menstrual trouble, and the patient has since menstruated three times normally."

"In young girls who are irregular in the early months of menstrual life, where it is simply caused by the natural weakness of the partially developed organs of generation, or where, from an overworked nervous system, the organs are robbed of their natural nerve force, this remedy seems to possess the stimulating properties requisite to bring them into healthy action. A remarkable case of this kind was that of a young girl who had menstruated once. Eight months had passed and the menstrual flow had failed to appear again. The mother of

the girl being alarmed sought advice. The permanganate was given in two grain doses twice a day. Within a week the girl menstruated the second time in her life. In two other cases of 'missing' in young girls, without any apparent cause, or any other symptoms, the remedy given in the same doses a few days before the next regular period was expected, stimulated the organs to a normal flow. The action of the manganese was so prompt in these cases that I am convinced it was no coincidence." Since the above report was made I have been able to add many similar cases to my list, and the results have been invariably as gratifying.

"It is well known that from exposure to cold the weakest organs of the body are the ones most liable to suffer. A woman who, when exposed to cold, immediately suffers suppression, cessation, or excess of the menstrual flow, will invariably be found to possess susceptible and weak menstrual organs. In cases of this kind, viz.: suppression, cessation or excess of menstrual flow, caused by catching cold, with no other apparent cause, the most gratifying and prompt results are obtained from manganese. The above variety of cases are of so frequent occurrence that in them I have had numerous opportunities to test the new remedy, and I have yet to see it fail, in either amenorrhœa or menorrhagia, when due to irritation of cold alone. In several cases where the flow was a week or ten days overdue from catching cold, the permanganate was given in large doses, and its almost magical effect demonstrated by the flow appearing within twelve hours."

My principle object in making *this report* is to emphasize the fact that manganese is a general stimulant of the menstrual organ, and in consequence of its stimulating power is an efficient remedy in certain forms of *menorrhagia* and *metrorrhagia*. In my report one year ago, I mentioned this point, but at that

time my opportunities for testing the drug in that direction had been somewhat limited. I said at that time:

"Although I have had greater opportunities for testing the value of manganese in *amenorrhœa* than in *menorrhagia* or *metrorrhagia*, I have received unmistakable evidence of its power in the latter forms of menstrual trouble."

"Menorrhagia and amenorrhœa in their outer manifestations are exactly opposite in nature, but they are very often dependent upon the same causes. When the cause is anæmia, or any depressing constitutional disease, producing a perversion of the functional activity of the menstrual organs, and their *perverted* action consists of an *irregular* or *excessive* flow, this condition will as readily succumb to the stimulating effects of manganese as when the opposite condition exists. The following cases are of interest: a woman, aged twenty-six, sought advice for excessive and irregular flowing. She had been married two years, and had one child, twelve months old. The child was large and strong, the mother physically slight. The mother nursed the child, and for ten months stood the strain very well, when she commenced to fail, suddenly grew weak and anæmic and began to flow excessively. This continued with but a few short irregular remissions until I saw her at the dispensary. She was given two-grain-doses of the permanganate of potash four times a day. At the same time all other treatment was withheld. In three days the patient returned, saying that the flow had stopped the next day after receiving her medicine. I then discontinued the manganese, prescribed iron and nourishing food, and she continued to improve. By digital examination nothing abnormal was revealed in the above case. Another case was that of a large, stout woman, thirty-five years of age, who came to the dispensary suffering from menorrhagia. Her menstrual periods were reg-

ular as to *time*, but the quantity of blood was alarmingly excessive, and would last for two weeks. She was married, had three children, the youngest three years of age. This abnormal condition of menstruation had been coming on by degrees for a year. The uterus was a little enlarged, and soft to the touch; otherwise, by physical examination, nothing abnormal. Four days before the expected flow, she commenced taking the permanganate in two-grain doses, three times a day. Menstruation came on at the expected time, and after a normally free flow for four days, passed off naturally. Before the next period the same treatment was repeated, with the same marvellous result."

The above histories were written a year ago. Since then I have seen a great many cases of menorrhagia and metrorrhagia succumb to the effects of manganese. I have complete histories of a number of these cases which might be of interest, but will be content to mention a few typical cases taken from the case book of Dr. S. F. Bradley, of this city, a gentleman who has taken considerable pains to test the value of manganese in menstrual troubles.

I. "Mrs. D——, age thirty-three. Treated during winter and spring of 1883 for chronic endo-cervicitis and endo-metritis; and enjoyed good health until August 10th, when she was taken with menorrhagia, which lasted six days before medical advice was sought. Gave in succession ergot, gallic acid, hot injections, injected tincture of iodine into uterine cavity, and finally plugged cervical canal with sponge tent which remained twenty hours. Hæmorrhage still continued. Then ordered capsules, each containing two-and-one-half grains of permanganate of potash, one to be taken every three hours. Flow ceased shortly after taking the second capsule.

II. "Mrs. F——, aged thirty. Made first visit January 19th,

1884. Three weeks before had a miscarriage at three months, and was attended by a midwife. January 19th, began flowing excessively, and suffered much pain in uterine region. Detected by digital examination a piece of placental tissue about size of hen's egg in uterine cavity. Removed with fingers, and flow ceased. From this time until February 24th, she improved rapidly from her anemic condition, but at the above date menorrhagia began and was excessive. Ergot (℥j fl. extract every two hours) was given during the night with no cessation of flow. The following day ordered two-grain capsules of permanganate of potash. Hæmorrhage ceased in two hours after taking first capsule.

Case III. "Mrs. McF——, age thirty. Two children, youngest one and a half year old. Began flowing in the middle of Sept., 1883. She sought no medical advice until Oct. 15th. The hæmorrhage had rendered her exceedingly weak and anemic. Gave ergot and elixir ferri quin. et strych. She continued this prescription for ten days, with no benefit. Ergot and gallic acid were then used with no amelioration. Careful examination revealed no enlargement of uterus—no tenderness—very slight laceration of cervix. On the 28th of Oct. ordered two-grain capsules of permanganate of potash, one every four hours. One hour after first capsule had been taken the flow ceased suddenly. The capsules were continued until three or four had been taken. Saw her a few weeks ago and her health had been excellent.

Case IV. "Mrs. B——, age thirty-five. Five children, youngest two years. Laceration of cervix (bilateral). Uterus four inches in depth. Chronic endo-cervicitis and endometritis—slight prolapsus. Treated her for uterine trouble a couple of months previously, and had advised operation. During the middle of October was taken unwell, flow never so

profuse. Had continued several days before seeking medical advice. Ergot, mineral and vegetable astringents had no effect. Gave the permanganate in two-grain doses. Shortly after first capsule was adminstered the flow began to diminish, and ceased entirely after the third had been given."

As has been demonstrated in the foregoing cases, the action of the drug is very prompt where indicated, and if discriminately given I am sure similar gratifying results will be obtained by others.

Dr. T. Gaillard Thomas, in an address on obstetrics and gynæcology, delivered at the first annual meeting of the New York State Medical Association, and published in the *Medical News*, of Philadelphia (Nov. 22), said of this remedy: "Permanganate of potash . . . . . as an excitant of the menstrual flow is, I think, the best emmenagogue which has yet been discovered." Dr. Roberts Bartholow, in a recent article on permanganate of potash, said: "The powers possessed by permanganate of potassium as a general stimulant are well exhibited in the active emmenagogue property which it has been shown to possess by Drs. Ringer and Murrell. In cases of amenorrhœa, due to deficient activity, it seems to promote the function in a remarkable degree. The same power which can so stimulate the sexual functions must, when exerted in other directions, prove equally effective."

"Although manganese, like the allied metals, nickel, zinc, iron and silver, has a direct influence on the blood as a tonic in anæmia, chlorosis, etc., it cannot be possible, in my opinion, that its peculiar influence on the catemenia can alone depend upon that virtue. To influence the organs of menstruation by acting as a general tonic, would necessarily be a slow process, and the effect would be very gradual. It would undoubtedly, however, as a general tonic have a predilection for these or-

gans. This was noticed and commented upon by W. H. Broadbent, of London, after experiments performed by him and recorded in the "Proceedings" of the Clinical Society, of London, for 1868-69, Vol. II., p. 122. 'Manganese,' he says, 'seemed to have a special influence in promoting the returu of the catamenia and nickel a special property of checking leucorrhœa.' But one can readily see by the character of the cases reported this evening, that manganese must have a more direct mode of influencing the menstrual organs than by the necessarily slow one of a general tonic."

In prescribing manganese it is well to bear in mind a few points of importance. Permanganate of potash (the original preparation used) has a disagreeable, distressing effect on the stomach when taken undiluted, which may be obviated by administering on a full stomach—immediately after eating—or dissolved in considerable water. In administering the permanganate in pill form it must be remembered that excipients ordinarily used by dispensers will produce with the drug spontaneous combustion. Dry gelatine capsules I have found to be the most convenient form in which to administer this preparation.

Dr. Roberts Bartholow says of permanganate of potash, in regard to mode of prescribing: "As this salt is so readily decomposed, yielding up its oxygen to any organic matter present, it is obviously necessary to be very careful in preparing and administering it. It should be given dissolved in pure water, or in compressed tablets. These compressed tablets, made by Wyeth & Brother, of Philadelphia, contain no excip ient, and are, therefore, entirely free from objection,"

22d Street and Wabash Avenue.

ARTICLE IV.

DIPHTHERIA: *Remarks on the Germ Theory, with Report of Cases under Alcoholic Treatment.** *By* G. H. CHAPMAN, M. D.

There is perhaps no disease known to medical science which has been so constantly and thoroughly discussed in all its bearings, as to its origin, history, pathology, and treatment, as diphtheria, and still leaves us so comparatively in the dark as to reliable remedies. I think I would not go astray in saying that every physician, the veteran, as well as those who are just entering the field, is ready to adopt any method of treatment which offers a reasonable promise of securing the end sought, viz.: the cure of the patient.

It is not my intention to enter into this subject in detail in this paper, but simply to present to your minds a few facts which have, in my experience, proved of value in combating this dread disease.

And first as to its development. Is it local, or does it involve the whole system? Many writers have considered it a purely local disease, and as such they advocated only local remedies, while others have gone to the other extreme and given no attention to local measures. Perhaps the most recent and universal theory has been that given by Oertel, that diphtheria begins as a local disease and develops afterwards into a general one; and that, moreover, the general infection is kept up by the local one. The disease germ attaches itself to the laryngeal mucous membrane, from which point by its rapid reproduction the whole system becomes speedily infected and the micrococci can be found in great numbers in all the tissues and fluids of the body.

Dr. H. C. Wood, in speaking of this matter before the Penn-

*Read before the Chicago Medical Society, January 5, 1885.

sylvania State Medical Association, last May, said, that Dr. Henry Formad and himself had been occupying their leisure time during the past three or four years investigating the subject of diphtheria; and when the attempt was made to infect the lower animals by using the material as obtained from an ordinary type of diphtheria as it appeared in Philadelphia, they failed; but when taken from those who were subjects of a malignant epidemic they invariably succeeded in infecting the lower animals; he also said it could be communicated from animals to man, the human subject.

They procured diphtheritic membrane, soaked it in water, then filtered it, and found the filtrate innocuous; while the residue was very poisonous and capable of producing diphtheria.

They also procured the membrane and cultivated the micrococci in soups, and found that they produced diphtheria with micrococci of the fourth and fifth generation; at least they were unable to distinguish the disease thus produced from diphtheria. Here, however, is an objection. They found in *ordinary saliva* a micrococcus, or plant, which cannot be distinguished from the micrococcus of the most malignant diphtheria; they were, as far as could be discovered, identical, and in everybody's mouth. They further noted a grade in the poisoning power. The micrococcus from a sound throat produced no poisoning, and the severity of the poison was directly as the virulence of the epidemic from which the poison was taken. Dr. Wood thinks that these researches prove that diphtheria is produced by micrococci that are present in every mouth.

They also conclude that in the majority of cases the disease was first local, the micrococci attaching themselves to the mucous membrane where they multiply and produce surrounding

inflammation, the "membrane becoming filled with micrococci they then force their way between the epithelial cells, the cells begin to die, and ulceration takes place; the mouths of the lymphatics open and the micrococci pass in. Early in the disease no micrococci are found in the blood, but after the constitutional symptoms have become severe, masses of them will be found in the vessels, and the plant invades the white blood corpuscles, which after a time will be found filled with micrococci; they will be found in the kidneys, in the capillaries, forcing their way between the muscular fibres of the heart and all over the body leading everywhere to destruction of tissue. Matter has also been taken from the discharge of puerperal metritis and from sloughing gangrenous ulcers and found full of microbes, which upon being inserted into animals produced a disease which could not be distinguished from diphtheria."

These are the conclusions of those who have spent several years in the scientific investigation of the subject, with abundance of material at their disposal, and would it not seem to disapprove the germ theory of the disease? We would not dispute the fact that microbes are in all diphtheritic membrane, but they are also present where there is no diphtheria, in sound throats as well as in septic discharges from other diseases, and are not found in the blood of diphtheritic patients "till constitutional symptoms have become severe."

If, as they affirm, "micrococci can be found in ordinary saliva which in no way differ from those found in malignant diphtheritic membrane," except possibly that they are inert, even though they may only be found in the saliva of those who frequent or inhabit the infected district, it would seem to prove that they alone are not responsible for the development of diphtheria; there must be *conditions for* their rapid reproduction which are not yet understood, and may it not be possible

that they simply find in this degenerated or septic condition of the fluids and tissues a good field for growth and development in an active state, and still not be the primary cause of diphtheria? Be this disease, however, purely local or general in its origin, be there micrococci or no micrococci as a primary cause for its development, the stubborn fact remains that in nine cases out of ten when the physician is first summoned to attend a case of diphtheria, he finds abundant evidence of general systemic infection, varying in degrees of intensity from simple circulatory excitement to the most profound degree of prostration found in septicæmia, and as such we are obliged to meet it.

A very severe form of diphtheria manifested itself in our community during the fall and winter of 1881 and 1882, commencing about the middle of September and continuing severe till about the middle of January, 1882. During the first six weeks of the epidemic I attended seven cases, four of which were mild in character, and readily yielded to ordinary treatment, the other three presented malignant characteristics, one died within twenty-four hours with croup as a complication, one died on the third day, and the third recovered after a protracted and debilitating illness.

My treatment in these cases was extremely free use of camphorated oil and turpentine, and application to the diphtheritic membrane every four or six hours with a camel's hair brush the following:

℞ Acid. Carbolici.....f. ʒi
Liq. Ferri Subsulph. .....f. ʒiii
Glycerin. .....f. ʒiv
M.

and during the interval directed frequent gargling with a saturated aqueous solution of chlorate of potash. Internally administered the following:

℞ Tr. Ferri Hydrochlor. ... .f. ℥iii
Quiniæ Sulph. .....f. ℥i
Potass. Chlor. .....f. ℥i
Syr. Glycyrrhiz. .....f. ℥iiiss
M.

in doses to suit the age of the child, giving to a child of eight years one teaspoonful every three hours. This formed the basis of treatment, other remedies, diuretic, laxative, etc., being used as each individual case seemed to demand.

In the case which seemed malignant and recovered, powdered sulphur was used after the fourth day, in the throat and nasal cavities, being blown in through a goose quill every six hours, after cleansing with the chlorate of potash gargle.

There had been up to this time (Nov. 1) about twenty cases in our immediate vicinity with twelve deaths, other physicians, local and foreign, succeeding no better than I in controlling the disease.

My attention was called to a short article in the Oct., 1881, number of the *Boston Journal of Chemistry*, where a physician who had diphtheria himself, took by mistake a swallow of dilute alcohol, and was surprised when he recovered from the strangling to find that he had coughed up large masses of membrane and felt relieved. He continued its use in his own case and subsequently in his practice with good success. I also recalled an article in the *Eclectic Medical Journal* of Cincinnati, March, 1881, where the writer, after referring to the analogy of the diphtheritic fungi to that found upon stale bread, belonging to the family of the *penicillium glaucum*, quotes from "Raue's Pathology and Therapeutic Hints," as follows:

"Pieces of bread were taken, covered all over with a dense vegetation of *penicillium glaucum*. Then he poured upon

one a concentrated solution of nitrate of silver; upon another a solution of chlorate of lime; upon the third, a solution of caustic potash; upon a fourth, a solution of sulphate of copper; upon a fifth, chloride of iron; upon a sixth, corrosive sublimate; upon a seventh, spirits of camphor; and upon the last, alcohol. The alcohol at once caused all the fungous growth to be thrown down and totally destroyed; so did the spirits of camphor—converting them at the same time into an amorphous mass; but all the other substances did not seem to affect the fungus growth in the least."

Even though the diphtheritic fungi be of a specific nature and essentially different from those found upon mouldy bread, an opinion which it is natural for us to entertain, still the theory of applying alcohol for its destruction would remain the same.

Interesting experiments with diphtheritic membrane are also detailed in *Ziemmssen's Cyclopædia*, vol. 1, page 680, from which we infer that alcohol is the safest agent which can be used to destroy or render inert these micrococci. I say safest, because other agents which will destoy their activity are liable to produce injury to the patient if not used by skilled hands, and alcohol can only intoxicate, and in diphtheria seldom does that, even if used in great excess.

I determined to give a fair trial to the alcoholic treatment, and use dilute alcohol with chlorate of potash as a gargle, powdered sulphur dry in the throat, and the internal use of hot whisky sling or milk punch, strong as could be borne, and only to be limited by the amount which would be tolerated without producing intoxication, with other remedies, as the cases might require to maintain the proper secretions of the body.

As a result of this trial I can report that my succeeding twenty-eight cases were carried to a successful termination, with one exception; and in none of them was there used a brush or probang to the throat.

The details as to condition, symptoms and treatment of a few cases are here given.

Case VIII.—(First under alcoholic treatment.) B. J., aged 13, strong, muscular, healthy boy, was first taken sick at noon Oct. 31. Had been feeling usually well for the preceding few days and up to the time of attack, when he felt some nausea, backache, and had a severe chill. I saw him first at 7 P. M., and found him with a dark flushed face, skin hot and dry; complained of severe headache and pain in left tonsil, which was tender on pressure from outside, breath very offensive, tongue coated, edges purplish in color. Tonsils enlarged, with a depressed mucous patch on the left one, about three lines in diameter. This tonsil had a purplish appearance, which grew darker as it approached the edge of the ulcer, and this ulcer a greenish, dirty white color. Some coryza and obstruction to nasal passages.

Temp., 105°; pulse, 120, full and bounding; patient quite restless and at times delirious.

Diagnosis—Diphtheria.—Treatment: Locally, apply over each tonsil a cloth saturated with carbon oil, and as soon as the skin shows irritation, apply a thin slice of salt fat pork covered with pepper.

As a gargle:

℞. Alcohol.....f. ℥viii
Chlorate of potash.....f. ℥iii
Water.....f. ℥viii
M.

and gargle freely every half hour, and wash the mouth with the same before swallowing either medicine, food or drink; also, every four hours, blow powdered sulphur into the throat after using gargle.

Internally:

℞ Tr. verat. virid.
Tr. opii deodorat. .....āā, f. ʒss
Aquæ.....f. ℥iv
M.

one teaspoonful every two hours till sweating occurs or fever abates; an improved compound cathartic pill to be taken at nine o'clock.

Nov. 1, 7 A. M. No change in the condition except a spreading of the membrane on the left tonsil to about six lines in diameter, and a spot about three lines in diameter on the right tonsil, with a slight decrease of the blue tinge of the mucous membrane. There being no good whisky at hand, I ordered a strong hot alcohol punch every two hours and continue other remedies as before.

12, noon. Decided diminution of fever; membrane appears shriveled with the edges rolling towards the center. Having now procured some good rye whisky, I ordered it given freely in the form of milk punch or sling, hot as it could be taken.

8 P. M. Membrane becoming rapidly detached from the left tonsil, and that on the right one presents the same shriveled appearance as was seen on the left one at noon.

The veratrum mixture was now discontinued, but otherwise treatment was the same.

Nov. 2, 7 A. M. Temp., 99; pulse, 90. Membrane all gone from left tonsil and nearly gone from the right one. Continue same treatment.

8 P. M. Temp. normal. Tonsils present a healthy pink color, with no membrane visible, and this in forty-eight hours from time of commencement of treatment. I visited the patient the following day and then dismissed the case.

Case 9.—Carl E., age 7. Was called at 5 A. M., November 1st, to see him, and found him with temp. 105°, pulse 140, and delirious, face flushed, and the condition of tonsils and surrounding tissues the same as in the previous case. I ordered the veratrum and opium mixture every two hours, and all the hot, strong whisky sling, or milk punch, he could be induced to take, adding a little saturated solution of chlorate of potash to every wine-glass of punch given, with local use of oil and pork, as in previous case. During my temporary absence from town the parents became frightened and called in a brother physician whom I found there on my return at noon. He said: "Doctor, you have here a very malignant case of diphtheria, and unless you treat the throat locally and treat vigorously, you will lose the patient."

I protested against any change of treatment and continued with the case as I had commenced, crowding the whisky as much as possible. At 11 P. M. he broke out in warm perspiration, dropped into a quiet sleep, and from that moment began to improve.

On the morning of November 2d, the membrane had the same shriveled appearance as that described in the previous case, and at 7 P. M., thirty-eight hours after commencement of treatment, no vestige of membrane could be found on either tonsil. He recovered very rapidly and soon was out of my care, cured.

Case XI occurred in a child only thirteen months old. The condition seemed one of malignant character, as the others, and whisky was depended on as in the other cases, with the same results. This child took in thirty-six hours one pint of the best rye whisky without producing intoxication, but completely relieving the stupor in which the child was when treatment was commenced, and caused the membrane to shrivel up and become detached as in former cases.

These are typical of the severe cases treated during this epidemic, and all were treated in a similar manner, varying as the difference of age and surroundings demanded.

As before stated, only one case was lost of the twenty-eight treated by the alcoholic treatment. This occurred in a girl eleven years of age, of nervous temperament, who six months previous had had a severe attack of typhoid fever, from which she had not recovered her usual nervous energy; consequently, when attacked by diphtheria of a severe naso-pharyngeal character, it was difficult to maintain the strength to resist its ravages, and she died on the eighteenth day from paralysis of the heart.

During the month of July, 1882, I attended three cases of croupous diphtheria, two of which died on the third day. The third one was seen on the third day (having been under treatment two days), and it seemed impossible for life to be prolonged an hour. I, however, ordered:

℞ Hydrarg. chlor. cor. ..... gr. ii.
Tr. Aconit. .... m. x.
Aquæ ..... f. ℥ viii.
M. et S.

one teaspoonful every hour. The milk punch and whisky sling to be continued as before. I left the house with instructions that I should be sent for if the child lived till night that I might advise as to farther treatment. The next morning being in the same neighborhood I dropped in and was surprised to find the child running around the floor, dragging a broom after itself in great glee.

Within the past two years I have used more constantly the liquor ferri subsulph. with carbolic acid and glycerine (applying it to the throat with a camel's hair throat brush) instead of sulphur. And I think the results have been full as satisfactory. My sheet anchor, however, is alcohol in some

form in every stage of the disease. Veratrum virdide and opium in the congestive condition, ferruginous tonics during convalescence if required, counter-irritation over the tonsils and careful observance of all the surroundings of the patient as to temperature, ventilation, drafts of air, etc. Success in the treatment depends as much upon attention given to the surroundings of the patient as upon the details of medication.

With this line of treatment the cases are brought to the convalescent stage quicker and with less general debility than where severe caustics are used, and the severer forms of treatment.

7725 Greenwood Ave., Grand Crossing, Ill.

EDITORIAL.

"LET NOT THE COBBLER GO BEYOND HIS LAST."

One of Chicago's most celebrated divines has recently made his *début* as a medical writer. He has selected as the medium, through which his pathological lucubrations shall meet the public ken, a weekly magazine, devoted to "Literature, Government, Science, and Art."

With characteristic modesty, he has chosen "Cholera and the Nervous System" as his theme. The selection of this particular magazine is judicious, since its contributors are elected exclusively from the ranks of the *illuminati*. Lord Chief Justice Coleridge has recently addressed an autograph letter to one of the chief editorial writers on the staff. Coleridge has read, "constantly," "week by week," "with interest and admiration," this paper. Then the topic is peculiarly felicitous. The subject is of vital importance. Koch, Weigert, Pasteur, Klein, Klebs, Perls, v. Recklinghausen, Birch-Hirschfeld, Virchow have studied the pathology and and therapy of this strange disease for years. Up to the present time, however, the etiology, to say the least, is obscure, and treatment is not always successful. Our esteemed contemporary has arrived at clear, distinct, and adequate knowledge, both in regard to the morbid processes as well as the curative powers of certain remedial agents.

After a brief exposition of that method of medication, termed

the "metaphysical treatment," the writer alludes to the theory of cholera, propounded by Dr. John Chapman, of London. "The base of the brain becomes disordered by heat or by some unknown influence in the atmosphere, and from this abnormal action of the spinal cord, the secretions become so redoubled that the fluids which support life are carried away as with a flood." "The disease is no more contagious than is ague or dyspepsia." "If the disease finds you, go to bed at once, and let the helping hands, if there are any, apply a long, narrow bag of ice to your abnormal and mischief-making spinal column, and perhaps you will live to swell the much needed *data* as to the best method of treating cholera."

We are told that Apelles, after the completion of a picture, was accustomed to expose it to the view of passers-by, hiding himself meanwhile in the vicinity, in order to hear the criticisms of the spectators. One day a shoemaker came along and criticized the number of ties upon the slipper of the painted figure. Apelles, recognizing the justness of the criticism, corrected the error. Emboldened by his success, the cobbler, on the succeeding day, passed certain strictures upon the contour of the leg. The indignant Apelles immediately put forth his head and requested the cobbler to confine his attention to the slipper. Hence arose the expression: "*Ne sutor ultra crepidam.*" "Let not the cobbler go beyond his last."

NEW REMEDIES.

Professor H. Senator, in a lecture delivered Nov. 20, 1884, before the Society of the Charité Physicians (*Berliner Klinische Wochenschrift*, Jan. 5, 1885), has expressed his views as to the therapeutic value of certain exotic remedies, which are employed, to a greater or less extent, by American physicians.

He has tried, on an extensive scale, the tincture of *cascara sagrada*, as prepared by Messrs. Parke, Davis & Co., and expresses great satisfaction with the results. In physiological action it deserves a place between rhubarb and senna. It has the advantage over both of these remedies of producing an effect in smaller dose.

Euonymin, derived from *evonymus atropurpureus*, is referred to the list of cholagogue cathartics, allied to podophyllin.

He ascribes decided hypnotic qualities to the extract of *piscidia erythrina*. It is a more reliable remedy than paraldehyde or cannabin. The remedy is especially useful in migraine. It does not, however, produce so sound sleep as chloral or opium.

Muriate of cocaine has produced, in Dr. Senator's hands, transitory anæsthesia of the mucous membrane of the rectum, urethra and bladder, in a variety of pathological conditions. In one case of *tabes dorsalis*, cocaine suppositories relieved the most violent, boring pains in the rectum, to which Westphal has recently called attention.

Oil of wintergreen possesses few advantages over salicylic acid in the treatment of articular rheumatism. It may be exhibited when the patient is averse to salicylic acid. When given in doses sufficient to control disease, it is productive of all the disagreeable symptoms of salicylic acid.

Picrotoxin was exhibited to control night sweats in forty cases of tuberculosis. In two-thirds of all the cases, the desired effect was observed.

Agaricin is also an effective remedy in the night sweats of phthisis. In large doses, however, it causes diarrhœa. It is also very expensive.

Both picrotoxin and agaricin are comparable in their action to atropine.

In two cases of *tænia mediocanellata*, *pelletierine* proved

effective. In one case the worm and head were expelled without doubt, in the other case, with a high degree of probability. The cost of the remedy is so great that *filix mas* will not be immediately superseded.

PHOSPHIDES AND SULPHIDES.

Messrs. Gale and Blocki (of Chicago), on account of the innumerable complaints of the phosphides and sulphides in pill form, have been led to investigate the cause.

Without entering into the details of their experimental processes, they make the general statement that the fault of these preparations is that they are pills.

"No phosphide or sulphide, especially sulphide of calcium and phosphide of zinc, should ever be dispensed in pill form, as it is a chemical impossibility to moisten either of these without setting free, and thus losing, the very element particularly desired, and to make pills for gelatine or sugar coating, it is absolutely necessary to use a moist excipient to get a mass."

"Our experiments convince us that the best method of administering these drugs is by triturating them with a small quantity of powdered elm bark and *capsulating dry*."

LITERARY NOTICES.

Owing to the illness of Dr. Albert H. Smith, of Philadelphia, Dr. E. C. Dudley, of Chicago, has been invited to contribute an article upon "Displacements" to Pepper's "System of Practical Medicine, by American Authors."

The editor is to be congratulated upon this accession to the ranks of eminent American practitioners, who are already enrolled.

Messrs. P. Blackiston, Son & Co., of Philadelphia, are about

to publish a very important medical book, entitled "Clinical Studies of Diseases of the Eye, including the Conjunctiva, Cornea, Sclerotic, Iris, and Ciliary Body," by Dr. Ferd. Ritter von Arlt, *Professor der Augenheilkunde in Wien*, translated by Dr. Lyman Ware, Surgeon to the Illinois Charitable Eye and Ear Infirmary; Opthalmic Surgeon to Presbyterian Hospital and Protestant Orphan Asylum, Chicago.

ERRATA.

We desire to call attention to the following typographical errors, occurring in the "Letter from Wiesbaden, Germany," appearing in the columns of our last number. On page 30, read "Taunus range" for "Launees range"; on page 33, read "irresistible" for "insensible," "springs" for "shrines"; on page 34, read "cures" for "caves," "regimen" for "*régime*"; on page 35, read "possibly thus" for "possibly this"; on page 37, read "du Bois-Reymond" for "Dubois Reymond."

BOOK REVIEWS.

HOLDEN'S ANATOMY. *A Manual of Dissection of the Human Body. By* LUTHER HOLDEN, *late President of the Royal College of Surgeons of England; Consulting Surgeon to St. Bartholomew's and the Foundling Hospital. Fifth Edition. Edited by* JOHN LANGTON, *Surgeon to and Lecturer on Anatomy at St. Bartholomew's Hospital; Member of the Board of Examiners, Royal College of Surgeons, England. Octavo, pp. xix, 886. Philadelphia:* P. BLACKISTON, SON & CO., 1885. *Chicago:* JANSEN, MCCLURG & CO.

The revised edition of Holden's Anatomy supplies a long-felt want of practitioners and students. The order of dissection has been materially changed, new illustrations have been added, and recent progress in anatomy, more particularly as regards the nervous system and the organs of special sense, has received due attention. As a clear, distinct, concise guide to dissection, the book has no equal in the English language.

LECTURES ON THE PRINCIPLES OF SURGERY. *Delivered at Bellevue Hospital Medical College. By* W. H. VAN BUREN, M.D., LL.D. (Yalen), *formerly Professor of the Principles and Practice of Surgery in the Bellevue Hospital Medical College, etc., etc. Edited by* LEWIS A. STIMSON, M.D., *Professor of Physiology and Clinical Surgery in the Medical Department of the*

University of the City of New York. Octavo, pp. vii, 588. New York: D. APPELTON & Co., 1884. *Chicago:* JANSEN, MCCLURG & Co.

Dr. Van Buren, for a period of thirty-five years prior to his death, occupied a phenomenal position as a teacher of surgery. It was a matter of general regret, when he ceased from labor, that no imperishable form had been given to the charming lectures which, students of the Bellevue Hospital Medical College and Medical Department of the University of New York had heard with so much attention and profit Dr. Lewis A. Stimson has conferred a lasting benefit upon the profession by the conscientious discharge of his duty as editor of the late Professor. Van Buren's lecture notes. As a tribute to the memory of a great American surgeon, and as an invaluable contribution to the literature of the subject, "Van Buren's Lectures on the Principles of Surgery" will find an honored place in every well-selected medical library.

FOREIGN CORRESPONDENCE.

LETTER FROM ITALY.

Messrs. Editors—During this century no remedy has attracted such great attention as cocaine. Its remarkable properties have been praised by every medical man in all the countries of the world. All the medical journals are enthusiastic in their reports, and the study of this alkaloid is the most important question of the day. At the risk of being a repeater, I have availed myself of a very interesting review by Prof. Rummo (*Riforma Medica*), to present to your readers what is known regarding cocaine and its effects. As soon as Charles Koller, of the Hospital of Vienna, communicated, at the Ophthalmological Congress of Heidelberg, his experiments made in the laboratory of Stricker, regarding the anæsthethic action of cocaine on the cornea and conjunctiva, every ophthalmologist and the most esteemed experimenters of all nations procured the remedy, and with a febrile activity they studied its physiological action and therapeutical properties. They are all unite to affirm that the property of cocaine, to render absolutely insensible the cornea, marks a discovery of the highest importance in the ocular therapy.

Cocaine (C_{17} H_{21} Az O_1) is a crystallized alkaloid, extracted by Niemann in 1859 from the leaves of coca (erythroxylon coca), a plant of South America. The annual consumption of this plant is over fifteen millions of kilograms, which represent a sum of about eight millions of dollars. Cocaine crystal-

lizes in small colorless prisms, slightly soluble in water, soluble in alcohol, and most soluble in ether; has a slight bitter taste, and a reaction strongly alkaline. The muriate is the salt most frequently used. This salt is soluble in water in the proportion of 5 per cent. without the addition of any acid; but the solution remains opalescent, becoming clear by filtration. Merck has also prepared the salicylate and the bromhydrate of cocaine.

Before the discovery made by Koller, several authors, as Woehler, Rossier, Demarle, Schroff, Loessen, Lippmann, Moreno y Maiz and recently Von Aurep (1880) and Sigmund Freud (*Centralblatt f. Therapie v. Heitler, 1884*) had already studied the physiological and chemical action of cocaine, but no one had spoken regarding its anæsthetic action on the cornea. The experiments of Schroff had shown that the injection of five to ten centigr. of cocaine in the subcutaneous connective tissue of the rabbit produced tetanic and epileptiform convulsions, great dilatations of the pupils, increased frequency of the respiratory acts and some cardiac contractions. It was also known that cocaine produced a general anæsthesia, and when placed in contact with the tongue it caused a complete anæsthesia. Cocaine was used by Coupard and Fauvel in 1870 and 1880 as an anæsthetic substance of the nasal mucous membrane. These effects inspired the idea in Koller to try cocaine as an anæsthetic of the cornea and conjunctiva. He made his first experiments in animals, and by dropping a solution of muriate of cocaine in the eye, he was enabled to produce a complete insensibility of the cornea and conjunctiva; a similar result he obtained in an inflamed cornea (traumatic keratitis). The instillation of cocaine in the eye produced also a diminution of the clearness in the vision of the objects, a paresis of accommodation, and a dilatation of the pupil. The mydriasis reaches the highest grade in the course of the first hour, di-

minishes during the second to gradually disappear in the successive hours. Koller reached these conclusions: 1st, the anæsthetic action of cocaine is cumulative; that is, if the remedy is instilled during the moment in which the first anæsthesia disappears, there is obtained a second insensibility of greater duration than the first; 2d, the action of cocaine is essentially local; that is, it acts more powerfully in the point of application and in its surrounding parts.

In the ophthalmological clinic of Prof. Reuss, Koller tried the action of cocaine with two objects: as a narcotic in the painful ocular diseases, as an anaesthetic in ocular surgery. As a *narcotic* he obtained favorable results, especially in the corneal and conjunctival affections, in case of iritis accompanied with photophobia and pains. It is to be noted that the pains and the photophobia returned two or three hours afterwards, and that therefore the remedy is to be periodically applied. Cocaine had no curative property in these affections. Again, the pain produced by the cauterization of the lids with the nitrate of silver is notably diminished, sometimes totally, by a previous instillation of cocaine.

Cocaine possesses a greatest importance as an *anæsthetic* in the surgery of the eye. By its use many operations can be performed on the eye, such as the extraction of foreign bodies from the cornea, without the least resentment on the part of the patients, operations of pterygium, cauterization of ulcers of the cornea, iridectomy, puncture of the cornea and the operation of cataract.

The method of Koller in the clinic of Reuss for the dropping of cocaine in the eye before the operation, is the following: half an hour before the operation, drop, every five minutes, a solution of five per cent. (two drops at a time). The instillation is practiced while the patient lies horizontally on the bed.

Vulpian, surprised by these marvellous results of Koller, and desirous of studying the general action of cocaine, made several experiments which he communicated to the Academy of Sciences of Paris. He found that the anæsthetic action produced by the general action of cocaine is inferior to the one obtained by a local way; by injecting the remedy in the veins there is produced a dilatation of the pupils and a certain degree of exophthalmos; these phenomena are analogous to those produced by the electrifying of the cervical column of the great sympathetic. The anæsthetic action of cocaine in the mollusks is not decisive. The toxic effects are clearly manifested, and the insensibility is produced in the crustaceaus.

F. Frank communicated to the Biological Society (Nov. 29, 1884) his conclusions on cocaine: 1st, cocaine, which suppresses the sensibility to pain and to the touch, does not suppress the cortical excitability; 2d, cocaine suppresses the excitability of the dura mater; 3d, cocaine has a transitory effect and does not determine any phenomena of local irritations.

Laborde has noticed that cocaine, injected in the subcutaneous connective tissue or in the veins of warm-blooded animals, in small doses, produces agitation or restlessness and analgesia of the mucous membranes of the nose, pharynx, tongue, etc.; in high doses, tetanic and epileptiform convulsions.

Arthur Beeson, of Dublin (*Lancet, Oct. 1884*), Marcus Gunn, Koenigtein, Hock, etc., have confirmed the physiological and therapeutical experiments of Koller.

In France the question was studied by eminent oculists with the greatest interest. Among these are Panas, Abadie, Landolt, Vacher of Orleans, etc. Panas, in one of his communications to the Academy of Medicine of Paris, confirmed, in a great part, the results of Koller, and said that the fugitive mydriatic action of cocaine could be utilized for the ophthalmo-

scopical exploration of the fundus of the eye, and that in the deep operations of the eye the patient notices only a slight pain in the excision of the iris. He also noted that the inflamed eye is more or less refractory to the anæsthetic action of cocaine.

Abadie (*Bull. gen. de Therap., 15th Nov., 1884*) could not notice any paresis of accommodation, as all patients could read the finest characters at a normal distance. Moreover, he noticed the great benefits of cocaine in the operations and in the painful affections of the eye, excepting the section of the iris and the extirpation of the eye, in which the patients frequently feel the greatest pains notwithstanding the previous application of cocaine. Landolt, (*Archiv. d'Opht., No. 5, 1884*) in the deep operations of the eye, attempted to instill the cocaine in a button-hole incision, made in the conjunctiva. When the remedy is injected in the lachrymal ducts, it renders more tolerable the passage of the sound.

Vacher (*Gaz. Hebd., No. 48, 1884*), in ocular operations, has practiced both the direct instillation and the subcutaneous injections on the course of the sensitive nerves of the region, and by so doing he observed that cocaine has an action more profound and more lasting.

But the generic physicians could not remain idle after noticing this great progress obtained by the oculists with the use of cocaine, and have tried the effect of cocaine in the affections of the different organs of the body. So far, we know that this remedy has shown its anæsthetic action on the oral, pharyngeal, laryngeal, nasal, urethral and rectal mucous membranes.

Dujardin-Beaumetz has calmed the violent gastric pains with this remedy. He sustains that cocaine can be used with benefit in the morphiomaniacs. Injected under the skin, it produces effects analogous to those of morphine, without the

grave inconveniences of this alkaloid. Vacher has used cocaine in the extirpation of teeth, by wetting a piece of cotton with a 0.1 solution and by introducing it in the bottom of the carious tooth. The extirpation, made after ten minutes, seemed less painful.

We can readily see that cocaine is destined to occupy an important position in therapeutics. So far, the best results have been obtained in the ocular surgery, but we may affirm that the muriate of cocaine is destined to substitute chloroform and atropine.

The price of this alkaloid at present is very high, but will gradually decrease as its consumption becomes greater.

A. LAGORIO, M. D.

Chiavari, December 31st, 1884.

LETTER FROM EDINBURGH.

Messrs. Editors:—I believe I promised at Aberdeen to send you a few observations again when I reached London or the continent, and though I have not as yet remained in either of the latter sufficiently long to give you much of interest, I may yet be able to say something of interest of Scotland, where I have spent most of my time.

Of Aberdeen I have already spoken in my last letter written from there, and there is little to add. My work in the University of Aberdeen was exceedingly satisfactory to me.

Leaving Aberdeen December 26th, my next visit was to Edinburgh, where I went direct, more especially to visit the University.

One naturally expects that an institution which has given to the world such names as Grainger Stewart, Sir J. Y. Simp-

son, James Syme, Joseph Lister, Sir Robert Christison, and many others scarcely less widely known, would attract numbers of students from all over the world. But, I confess, I was scarcely prepared to find that the University of Edinburgh teaches as many students as all the London colleges and hospitals combined. Such, I believe, however, is the case. The University of Edinburgh, this season, has within its walls some three thousand (3,000) students, nearly two thousand (2,000) of whom are studying medicine. At first thought it would seem almost impossible to furnish teaching facilities for such a number of students in one institution. The extra-mural system of teaching is permitted in four classes out of the course, which not only relieves the classes from extra crowding, but also, through the resulting competition in lectures, tends to the attainment of a standard of greater excellence, not only among the outside teachers, but those, also, who occupy the regular chairs in the university.

Extra-mural lectures, I would say for the benefit of those not familiar with the term, means simply lectures given by an independent teacher outside, and who has no connection whatever with the university; and, as before said, a student may pursue his studies in four branches of the course with extra-mural teachers.

I met one extra-mural professor of anatomy who has three hundred and fifty students this season. One sees in the University of Edinburgh students from all over the world, of nearly every race and color, but, singular at first thought to note, nearly one-third of the whole are from England.

This latter, I am inclined to think, is due to the very high standing of the Scotch schools of medicine in the United Kingdom, or at home, in other words. It will be remembered that in Scotland there is no such thing as a half qualification;

the curriculum embraces all the branches of medicine, surgery and obstetrics, while in England one goes to the college of physicians for his qualification in medicine, and to some other place for a qualification in surgery.

The new medical department of the University of Edinburgh is, no doubt, one of the finest institutions devoted to medical education in the world, and this has only been occupied now two years. Great expense and outlay has been and is still being carried on for purposes of original work. I am indebted to Professor Greenfield, Professor of Pathology, and Assistant Professor Woodhead, for the kindness of a very complete examination of their department, as well as the anatomical department of the University, on New Year's day, when, ordinarily, they are not open. The enthusiast in the "germ theory" might here revel in a veritable elysium of of microbe cultures in all their stages. It struck me, however, that in Edinburgh there was far less enthusiasm as to their etiological relations to disease than there appears to be in Germany; not that there was less interest in the subject as a pathological study, for I found quite a large room full of cultures in various stages.

The curriculum in Edinburgh is precisely the same as that at Aberdeen, of which I have already spoken in my last, and hence need not refer to it again.

It would be simply impossible for me, in the necessary limits of a letter, to give the details of the departments of this mammoth University. Its library contains 145,000 volumes, and originated in a bequest in 1580 by Mr. Clement Little, Commissary, Edinburgh, a learned citizen, and brother of the Lord Provost, who left his library to "Edinburgh and the Kirk of God." Many illustrious citizens have since bequeathed their libraries to the institution, among them the poet Drummond, of Hawthornden. In addition to the 145,000 volumes, about

2,000 volumes of MSS., many of great interest and value, and some valuable pictures and busts, are kept in the library and senate hall.

The Museum of Arts and Sciences is well worth careful examination; some of the departments are very complete, among which, especially, is that of ornithology.

Among the many pleasant memories of my visit to Edinburgh, none will be remembered longer than the great kindness and courtesy shown me by Grainger Stewart. Though his kindness to strangers is proverbial, I scarcely expected from a man, whose time is so valuable, that so much of it would be so cheerfully spent in hospitality to visitors.

The Royal Infirmary at Edinburgh, situated directly opposite the new Medical Department of the University, to the west, is a magnificent hospital, in no wise behind the great St. Thomas' at London. Essentially modern in all respects, built on the pavilion system, with spacious grounds, it contains about 600 beds, and its staff of attendants are the most careful in every detail I have yet met. It is unnecessary to say that the Royal Infirmary is not in any way *politically* conducted. The Royal Hospital for Sick Children, directly adjoining, to the east, with over a hundred beds, is also a very well conducted institution, and I was glad to find there as resident physician Dr. Anglin, a graduate of my own university, as well as fellow townsman of my native city.

I found my friend, Dr. Anglin, organizing in Edinburgh a Trans-Atlantic Club, the objects of which are:

First. That the members might meet at stated intervals for mutual improvement, and at all times have the opportunity of reading home papers and journals.

Second. To extend to new-comers, on their arrival in Edinburgh, a hearty and home-like greeting, so that they may not

feel themselves strangers in a strange land, and to supply them promptly with all necessary information to aid them in their work.

I regretted that my visit to Edinburgh necessarily occurred during the mid-winter vacation, and hence I was deprived of the pleasure of hearing any of the lectures. But I may yet return for a week to Edinburgh before my return to America.

I visited, I suppose in common with most of those who go to Edinburgh, the West Port, at the west end of the Grass-market, which has acquired notoriety in connection with the series of murders committed in 1827–28 by the miscreants Burke and Hare, for the purpose of selling the bodies of their victims for dissection. I went into the cellar where these scoundrels carried on their work, and was shown over the whole place in detail.

I left Edinburgh Jan. 3d, on my way to the Continent, and stopped at Harrowgate two days with my friend Dr. Geo. Oliver. Harrowgate, it will be remembered, is the principal watering-place in the north of England. It reminds one very much of an American city, not only from its buildings, but also its roomy streets and spacious public grounds. Two hundred acres of land is reserved in the city, donated by the lord of the manor for public grounds—a privilege enjoyed by few cities in England. There are some eighty springs at Harrowgate, mostly sulphurous, and about 80,000 visitors go there each season. One spring contains chloride of iron (unusual) in a very large proportion. Dr. Oliver issues a new edition of his book on "Bedside Urinary Tests," in a few weeks, and from advance sheets which I had the pleasure of seeing, I may say that it will contain many things both new and interesting in the way of urinalysis.

My next visit was to Manchester, where, of course, I met Dr.

Roberts, and spent an agreeable evening at his house. One expects on meeting the authors of books one has read ten years or more ago, to find men of advanced years—quite old, in fact; at least such were my expectations, but in nearly every instance I have been agreeably disappointed. Dr. Roberts, for instance, and Grainger Stewart, are both men in their prime, well preserved, and not over 47, either of them, with very few gray hairs, and still doing a large amount of literary and professional work. The former (Dr. Roberts) informed me that he had just sent the last sheets of his new edition to the press the day I saw him, and Grainger Stewart presented me with a copy of his work on "Nervous Diseases," issued the same week of my visit to Edinburgh.

Again my stay in London was only transient, and I regret I am unable yet to give you anything of interest from the English medical center, and a two days' sojourn in Paris does not furnish sufficient experience to write from, hence I must reserve both for a future occasion.

CHARLES W. PURDY.

Paris, Jan. 9, 1885.

TRANSLATIONS.

COCAINE AND ITS SALTS. *Translated by* WM. M. SMITH, M.D.

C_{17} H_{24} NO_4 (Lossen).

Cocaine is an alkaloid of the coca leaves (Erythroxylon Coca Sam.), which was isolated by Niemann in 1860. In 1862 Lossen found a second, volatile, base, hygrin, which has been little investigated up to the present time; but it is apparently weak, and without the characteristic action of the cocaine. Other extracts of the leaves are: Ecgonin, coca tannic acid, and a peculiar wax. The cocaine crystals belong to the monoclinic system; they melt at 98° C., dissolve easily in alcohol, still more easily in ether, but only in 704 parts water at 12° C. The salts of cocaine, on the contrary, are readily soluble in water.

The first intelligence of the action of coca, taken internally, was furnished in the 16th century (Dr. Monardes, Sevilla, 1569). In 1749, the plant was brought to Europe, described by Jussie, and named *Erythroxylon coca*, by Lamarck. Tschudi, Markham, Poppig, and other investigators who traveled in South America, observed that the natives chewed the coca leaves when they wished to neutralize the effects of over-fatigue. The Indians macerate the leaves with ash of chenopodium quinoa, in order to eliminate the tannic acid by means of the alkali, and to free the alkaloid.

I produce the cocaine-alkaloid pure, as also its combinations, with muriatic acid, salicylic acid, hydrobromic acid, tartaric

acid, and citric acid. Since the production of the cocaine has been accomplished, it is believed that in this substance the active principle of the coca leaves has been found.

At first it seemed probable that a similar action might be found as a quality of one of the analogous alkaloids, such as caffein, thein, or theobromin. However, nothing has yet occurred to support this idea.

Cocaine acts upon the nerve centers, but also upon other nerve regions—in small doses, as a stimulant; in large ones it causes paralysis. It kills warm-blooded animals, by arresting pulmonary action, though they are less affected by it than the cold-blooded animals. Although no doubt exists, therefore, that cocaine is a poison, still its toxic qualities are relatively small, and its action is not cumulative.

Schroff, who in 1862 made the first experiments with the remedy, saw, in puppies, after a dose of 0.05 grm. *per os.*, fluctuating respiration and transitory mydriasis. The same dose, administered subcutaneously, caused the death of the animal experimented upon, with epileptiform convulsions and very decided mydriasis, which immediately disappeared as soon as death occurred. With frogs, the application of 0.001 grm. is followed by complete loss of the power to move; *dosis lethalis* 0.002 grm.

According to Fronmüller, who, in 1863, examined the narcotic action of cocaine, 0.03 to 0.33 grm. administered to man internally produced no important effect; in one case, sleep intervened. Pulse and breathing were somewhat accelerated at first, later were subnormal. On one occasion, when taken with suicidal intent, 1.5 grm. cocaine was not followed by any serious effect upon the health. The fatal dose for man, therefore, must be very great if it cannot be established that the preparations of that date were not pure cocaine.

So far as the coca infusions have been experimented with, it may be considered that the leaves contain between 0.02 to 0.2 per cent. of cocaine. Of my cocaine mur. sol., 0.05 grm. appears to be an effective dose for man.

After subcutaneous injection of an attenuated solution of cocaine in man, a sensation of warmth is felt at first, then loss of sensation in the region about the injection; finally, a circumscribed redness of the skin, and after about thirty minutes, a return to the normal condition. Applied to the tongue, it benumbs the nerve sensibility of the same.

Quite lately, Dr. Th. Aschenbrandt, in the No. 50 (1883) of the *Deutsche Med. Wochenschrift*, has appeared as a champion of the cocaine, in that he accredits it with most remarkably beneficial qualities in great debility, particularly that produced by diarrhœa. During the last month, Prof. Dr. E. v. Fleischl, in Vienna, and Dr. Sigm. Freud, Physician in the General Hospital in Vienna, have diligently occupied themselves with this preparation. The former, particularly, has determined that the cocaine, by hypodermic injection, has proved itself to be an invaluable adjuvant against the continued use of morphia; also, against a single fatal dose. This fact alone should give the remedy an enduring place among the treasures of the physician.

Those above referred to have given the medicine in the form of its muriatic acid combination, in doses of 0.05 to 0.15 grm., and as much as 0.5 grm., in a watery solution, has been given per day. Dr. Freud has made a number of experiments upon himself and others, and besides a constant increase in physical strength, he has recognized a true coca-euphrasy. The feeling of hunger and the want of sleep disappear during the action of the coca.

With the attempt, in the following lines, to answer the question as to the therapeutic worth of the cocaine, I must likewise

remark that up to the present time only the foundation can be given for future research. To this end, the remedy will be diligently experimented with in the various fields of medical science, so that it may be hoped that decided results as to its real worth may be obtained at an early date.

Cocaine is a stimulant which is peculiarly adapted to elevate the working ability of the body, without any dangerous result. Its action is stronger than that of alcohol. Its use for this purpose in marching or mountain climbing is self-evident. The dose in such cases may be from 0.05 to 0.01 grm., repeated as required.

It is still an open question as to whether mental labor may be carried on a greater length of time or made lighter by its use or not. Even so must it remain undetermined for the present as to whether the psychiater will be able to make use of cocaine for the purpose of inducing a continued elevation of the powers of the nerve centers. The subcutaneous use of cocaine in a daily dose of from 0.0025 to 0.1 grm. has been applied for months to patients suffering from melancholy, with some definite results.

Cocaine is a stomach remedy, in so far that after debauches in eating and drinking, it has produced rapid amelioration, and a normal longing for food, when used in doses of from 0.025 to 0.05 grm.

In atonic weakness of digestion and nervous disturbances of the stomach, a lasting return to the normal condition may be attained from time to time by the use of cocaine.

Also in cachexia is the continued use of cocaine recommended: in phthisis, great anæmia and wasting fevers. Further threatened mercurial cachexia from the continued use of quicksilver has been avoided by the incorporation of cocaine.

In any event, cocaine has its greatest future in morphia, and

perhaps, also, in alcohol-abstinence. An American, W. H. Bentley, published in 1878 the observation that coca may paralyze the morphium hunger of the opium-eater. If all that has been recently published in this connection should be confirmed, the remedy is of incalculable worth. Relapses do not occur; on the contrary, the disuse of the coca may take place promptly at the proper time without a return of the morphium hunger. Depression and nausea do not occur during the cure; diarrhœa and chills are the only symptoms observable.

In case of gradual or long-continued withdrawal of opium, decreasing doses of morphia and increasing doses of cocaine are given. In cases of absolute and sudden abstinence, doses of 0.1 grm. are injected as often as the morphium hunger is felt. Confinement in institutions become quite unnecessary with this method. Dr. Freud, who, with others, saw such a case, after ten days cocaine treatment (0.1 grm. subcutaneously three times per day), pass into positive convalescence, is of the opinion that a direct antagonism exists between morphium and cocaine.

The treatment for the alcohol habit is far more difficult. The first experiments date also from America, and seem to have turned out favorably.

The remedy has also been recommended as an aphrodisiac, and Dr. Frend has undoubtedly observed sexual excitation occur after the use of cocaine.

As already remarked, as soon as cocaine comes in contact with the mucous membrane it produces a transitory loss of sensation of the same. Therefore not only attempts to cure certain laryngeal and throat affections are made, but it is hoped that in operations in the larynx it may be employed as a local anæsthetic. An important and obviously frequent employment of cocaine seems to be assured in the field of ophthalmology.

On the 15th of September, at the meeting of the Ophthalmological Society in Heidelberg, the experiments of Dr. Koller, instituted in Vienna, were discussed. Dr. Koller has experimented on the eyes of animals, also upon his own, a number of times, and has found that immediately after dropping in a 2 per cent. solution of cocaine mur., a brief burning occurs, continued for not more than a half minute, which is soon succeeded by an uncertain feeling of dryness. The opening of the lids of the experimented eye appears wider; reflex action, which otherwise occurs upon approaching the cornea, motion of the head, of the lids, and shrinking back of the eyeball, disappears. In this condition a small scoop can be passed over the cornea without producing an unpleasant sensation; or the conjunctiva bulbi may be taken up with the forceps.

The anæsthesia of the eye lasts about ten minutes, though lack of sensation may persist some hours. Twenty to thirty minutes after the instillation the pupil dilates and returns to its normal state in a few (say twelve) hours. A slight, easily-overcome paralysis of the accommodation during this time is the only abnormality observed. As to the rest, the functions of the eye remain intact.

Dr. Koller has determined the anæsthetic action of the cocaine in animals in which he had produced a keratitis by irritation with a foreign body. He prognosticates a future for the cocaine in the removal of foreign bodies from the cornea, and in greater operations (cataract-extractions, *iridectomy*), or as a narcotic in corneal and conjunctival affections. Which salt of cocaine can be used to the greatest advantage in eye-practice will be very shortly determined.

It remains to be said that the experiments, the results of which I have here reported, have been made, without exception, with the preparations brought into commerce under the

name of "*Cocain mur. solut. Merck;*" only for these are the doses and action, as above stated, to be relied upon.

E. MERCK.

Darmstadt, October, 1884. — *Klinische Monatssblätter für Augenheilkunde, Zcherder.*

TRANSLATIONS. *By* A. LAGORIO, M. D.

New Facts About Antipirine. — Rauk (*Bulletin Gén. de Therap.*) has employed the new remedy, antipirine, hypodermically, to avoid the vomiting which is produced in some subjects when used internally, and from his observations he has drawn the following conclusions: 1. Antipirine is a prompt and a sure antipyretic in all febrile diseases, and especially in pneumonia, pleurisy, typhoid fever, acute rheumatism, erysipelas and tuberculosis; moreover, it does not produce any notable bad effects. 2. When used hypodermically, antipirine lowers the temperature more rapidly than when used internally. 3. To produce a lowering of the temperature by the hypodermic method, smaller doses are needed; two grams have been sufficient, while internally four to six grams must be given to have the same effect. 4. The best solution for the hypodermic use is that of 1 gram of antipirine in 50 centigr. of water. 5. This method does not produce any local nor general disturbances. 6. This method is always preferable to the way of the stomach (except in some cases, as in children or in feeble individuals), because smaller doses are used and the vomiting is avoided. 7. It seems that the remedy, antipirine, is destined to a great therapeutical future, its effects being sure and rapid, and the price not high.

The use of this remedy by other experimenters has always confirmed the results of Filehene, and Rauk-Biermer obtained

splendid effects in several febrile diseases, (pneumonia, small-pox, erysipelas, etc.). Dr. Alexander gives great credit to this remedy in typhoid fever and phthisis (*Breslauer Arztli-zeitschrift*). Naunyn, of Koenigsberg, praises the good effects of antipirine in phthisis and in typhoid fever.

Generally the lowering of temperature commences after taking the first dose. Having reached the maximum of the lowering, this state will last generally five hours. The rise is made without any chill (kairine produces it). In no case any bad effect was noticed, although some patients took large quantities; one took 49 grams in eight days; another, 51 grams; a third, 15 grams in 24 hours. This shows that large doses can be taken without danger. The remedy has been impotent in the control of the paroxysms of intermittent fever.

Dr. Alexander, in a recent communication, referring to the new results of Biermer, at Breslau, is in some points in contradiction with Rauk. He is said to have been obliged to discontinue the hypodermic injections on account of the pain and abscesses produced by this process, while Rauk asserts that he has never had such accidents. To avoid these inconveniences, he administered the remedy in enemas: two tablespoonfuls of a solution $\frac{1}{5}$ in 200 grams of water, repeated every hour, till a sufficient lowering is reached.

Prof. Riegel, of Giessen, to prevent the sweats frequently produced during the lowering of the temperature, gives two pills of agaricine of 0.005 gram. about a quarter of an hour before the first dose of antipirine. Atropine acts in the same way. (*B. Kl. Woch.*) Penzoldt and Sartorius have tried it in 21 children of different ages, in 18 cases of pneumonia, 1 of erysipelas, 1 of scarlet fever, and 1 of diphtheria.

In the beginning, as a precaution, the dose for children will be as many decigrams (less one or two) as the years of the

little patient, viz.: five decigrams for a child six years old. They take the remedy willingly when mixed with syrup. The effect is also good when given in clysters.

Tannate of Cannabine.—Tetanus-cannabine is a crystallized substance extracted from cannabis indica by the eminent Prof. Mathew Hay, in Scotland. It is known that this tetanus-cannabine, possessing most potent toxic properties, resembles strychina in its physiological action. It is obtained in the form of colorless crystalline needles, soluble in water, in alcohol, and much less in chloroform and ether. If we isolate one of the parts, constituting this extractive matter so far unknown, which Prof. Hay has named *tetanus-cannabine*, to remember its physiological properties and its origin without prejudicing its true nature, and if we unite to tannin the substance which contains the hypnotic properties of cannabis indica, we will obtain a new body called *tannate of cannabine*, which possesses narcotic properties by far superior to the extract of cannabis indica. Dr. Trohmüller had used it with the best results. He refers to the history of 63 patients, 21 males and 42 females, the ages ranging from 17 to 77 years, the majority being between 20 to 40 years. Of this number 40 were affected with phthisis, 4 with abdominal tumors, 3 with chronic bronchitis, 2 with lead colic, 1 with acute pneumonia, 1 with dementia, 2 with alcoholism, a female had perimetritis, 2 other patients were severely affected with asthma, 4 presented painful symptoms of mercurial poisoning, a last one had an abdominal neuralgia.

All these complained of a complete or partial insomnia, for which they had taken opiates per os, or morphine hypodermically. The tannate of cannabine gave good results as a seda-

tive and a hypnotic in 37 of these patients. The action of the remedy began to be noticed about half an hour after its absorption by the mouth, and the sleep continued calm during all the night. In 15 other patients the calm was only partial, while the result was negative in other 12 subjects. Two patients, on awakening, complained of a slight head turbidity, which changed to headache or to a vertigo in some cases. A patient, who had taken a larger dose of the tannate of cannabine, presented symptoms of narcotism, which were relieved with acetic ether. In no case occurred any constipation nor nausea.

In the *Algens. Med. Chir. Zeitung*, Dr. Trohmüller calls attention to the advantages of this remedy to opium. It does not affect the physiological secretions, and less than opium, there occur any toxic accidents. All this will tend to make the tannate of cannabine a potent rival of opium.

The therapeutical dose is one grain (5 centigr.) to 5 grains (25 centigr.). It is important that the tannate of cannabine be free of any trace of tetanus-cannabine. (*Riv. Clin. e terap.*)

[It has no action when there exists a great excitement. It is to be absolutely avoided in case of hallucinations, for it will increase their intensity.—L.]

Parasites in Cholera (*Bricon*).—Pouchet and Vahl have found in choleraic discharges the *Vibrio Regula*, and this observation has been confirmed by Hassel, in 1873. During the same year, Pouchet, Brittan, Swayne and Budd described some *annular bodies*, *choleraic cells*, and choleraic fungi, classified by Busk and Williams in the *Credineæ*. Grove observed some *granular bodies* in the urine of cholerics and Klob found some *zooglea* colonies which developed in *leptothrix;* Thomé de-

scribed a fungus which he named *cylindro-thœnium choleræ asiaticæ*. But most important and badly valued were the studies of Prof. Pacini.

Pacini, in the year 1854, noted in the fecal discharges of the cholerics, the presence of numerous bacilli, multiplied in the intestinal epithelium, causing its destruction. Bouchardat considered the cholera as caused by a poison produced by *infusoria*, which were the cause of putrefaction in the swamps of Gauge. Haller attributed the cholera to the action of micrococci, which were nothing else but spores of the *Urocystis occulta*.

Gietl ascribed the disease to parasites. Lewis and Cunningham found in the blood of the cholerics masses of protoplasma, transparent and larger than the white corpuscles of blood, without nuclei or cellular membrane, having amœboid movements and minute granulations.

Danet attributed the cholera to a cryptogam greatly analogous to the *Oidium albicans*. He affirmed it to be identical to that described by Thomé, by Pacini and by Klebs.

Nedsoctski found bacteria in the dejections, in the vomited matter, in the urine, in the blood, etc., of choleric patients. Martin and Schweninger saw the uriniferous tubules completely obstructed by bacilli.

Hayen and Rayraud found in the fecal matter of cholerics numerous organisms without any special form. They observed bacteria, vibriones, and bacilli, but similar to those usually found in the fæces of sound or sick individuals, and in every epoch of life.

Permanent Antiseptic Medication.—The following are the conclusions of a splendid paper of Professor Emarch, of Kiel, read at the Congress in Kopenhagen:

1. In all wounds, whether produced accidentally or by the hand of the surgeon, the most desirable result is *the healing by first intention;*

2. This sort of healing can be always obtained by *keeping the infectious substances absolutely away from the wound, and the wounded part at rest;*

3. As the renewal of the dressing disturbs the wounded parts, and exposes them again to the danger of infection, we can see that a *permanent medication* (that is, one which can remain *in situ* until the complete cure of the wound) is the best of all;

4. If it is desired to avoid the renewal of the dressing before the cure has occurred, it is necessary to cleanse, close and dress the wound in such a manner that *no exciter of putrefaction nor any foreign body* remains in the wound, and that *no blood and secretion of the wound* be retained in any place.

Therefore the principal conditions of success are, (*a*) A complete *hæmostasis;* (*b*) *To avoid that any cavity is formed* inside the wounds; (*c*) to see that there be a *free exit* to all the secretions of the wounds; (*d*) very accurate *asepsis* and *antisepsis;* (*e*) the use of *compressible material for the dressings*, which *will absorb* the liquids; (*f*) immobility of the wounded part.—*Wiener Med. Presse,—Rivista Clin. e Ter.*

The Comma-bacillus.—The *Wiener mediz. Woch.* asserts that Koch has been able to demonstrate the transmission of the Comma-bacillus in animals and has produced the cholera in rabbits. That he has also demonstrated the non-identity between the bacilli of *cholera nostras* and Asiatic cholera.—*Italia Medica.*

Researches on Hydrophobia.—Pasteur, Chamberland and

Roux have communicated to the Academy of Sciences of Paris the important results of their studies.

The great fact of the variable virulence of one virus, and the preservation of a virulence for another of less intensity, is now an acquired fact of science and practice.

The virulence of the virus of rabies becomes enfeebled by the passage from the dog to a monkey and from the monkey to another monkey, and if the virus so enfeebled is carried back to the dog, to the rabbit and to the guinea pig, it is again attenuated. By the passages from the monkey to a monkey the attenuation can be brought to a condition unable to produce the rage in the dog, nor by the method of hypodermic inoculations, nor by the surer one of the trepanation.

The virulence of the said virus increases, if passed from rabbit to rabbit, or from guinea pig to guinea pig, and when it is carried to a maximum in the rabbit, it is transmitted in such a condition to the dog as to produce a rage always mortal.

It will now be of great interest to be able to suppress the development of hydrophobia following bites of rabid dogs.

Pasteur believes that, on account of the long period of incubation, the refractory state of the bitten subjects can be determined with a surety before the disease has manifested itself. The first attempts gave the greatest hopes of success, but it is necessary that they be multiplied *ad infinitum* and on different species of animals before they be attempted on man.—*Le Progrès Medical.*

Treatment of Cholera with Iodine.—According to Dr. Senise, of Naples, iodine has an anti-choleric action *par excellence.* He asserts that cholera has never reappeared where he used tinct. of iodine, sulphuric acid and sulphurous acid as disinfectants.

As a prophylactic he ordered a teaspoonful of cognac with a drop of tr. of iodine and two to four drops of laudanum two to three times a day. Whoever used this mixture was never attacked with cholera. Professor De Renzi gives one drop of the tincture to stop the intense vomiting. He reports many cures with the iodine treatment. Maurice in a recent communication states that he has observed on the field of the microscope that the microbes while resisting to solution of 10 per cent. of carbolic acid, perish instantaneously under iodine, although used a 1 per cent. solution.

Ovariotomy in a Child Twenty Months Old.—After a previous puncture, Romer performed laparotomy under a carbolized spray and extirpated an ovarian cyst, the size of a child's head. The cure occurred without any disturbance. This operation is unique in the literature, as so far such a splendid ovariotomy in a child of such atender age, was never practiced, with equal success.—*Berl. Klin. Wochenschrift.*

Whims of Hysteria.—A young woman, twenty-five years old, hysterical, during 1882 had an attack of acute articular rheumatism, from which she recovered. In 1883, she complained of sharp pains in the right knee. There was noticed, a little below the joint, a brownish swelling where the head of a pin could be felt. At the same time several other swellings were discovered in different parts of the body and especially on the right and left arm, on the chest, abdomen, legs, etc. During the month of December there were extracted 65 entire needles and 6 broken ones; in January 110, and, finally, the patient confessed to have swallowed five packages contain-

ing 140 needles. This case was reported by Professor Wide in the *Révue Medicale.*

A similar case was told by Herboldt (1822) of a girl fourteen years old, who, in 1807 had colics, hysterical attacks, etc. In the year 1819 numerous abscesses appeared on the surface of the body, from which were extracted 273 needles; in 1820 she had paralysis of an arm; in 1821 a hundred needles were extracted, and in 1822, while in the hospital, 32 needles were again taken from her body. Human whims!

Rindfleisch's Process to Study the Bacilli.—Rindfleisch propounds a modification which abbreviates considerably the duration of these manipulations. He slightly warms the coloring liquid. He places for a few seconds above the spirit flame the watch glass containing the solution of fucsine or of violet, until there is noticed a slight vapor on the surface of the liquid; the preparation is then immersed, and in fifteen to twenty minutes the bacilli are sufficiently colored, and the nitric acid solution can be used.

To mount the preparation, Rindfleisch also substitutes for the Canada Balsam a mixture of equal parts of glycerine and a syrupy solution of gum arabic, to which he adds a small quantity of arsenious acid.

The process of Ehrlich, so modified by Rindfleisch, is of sufficiently easy use, and it does not require more than twenty to twenty-five minutes to prepare a specimen. It is also used by Koch, who has renounced his own primitive method. Therefore we can be sure that the bacilli colored with this process are really the bacilli described by Koch, which cannot be affirmed when other methods are employed. The tubercle bacilli are thin, a quarter, half, and may be as much as the

diameter of a red globule long, are similar to those of lepra, but thinner and more pointed.

These bacilli are almost always isolated, rarely are united by two at the extremity, and never form masses.

Diphtheritic Arthritis.—During an epidemic of diphtheria, Pauli observed some cases of multiple articular pains as a complication of the disease. He explains this concomitance of the arthritis as the effect of the specific virus analogous to that of blenorrhagia.—*Paris Medical.*

Inhalations of Oxygen.—Massei agrees with Leci and Boucher in praising the efficacy of the inhalations of oxygen in diphtheria. This gas is a poison to bacteria and a stimulant in the adynamy and in the threatening paralysis of the vagus.—*La Sperimentale.*

Compressed Air.—Masini propounds to substitute the inhalations of compressed oxygenized air to the simple inhalations of oxygen in croup, trusting to the mechanical action exercised by the compressed air on the narrow walls of the larynx, and on the chemical action of the blood due to an increase of the inspired oxygen. He uses the Waldenburg apparatus, adding the sufficient quantity of oxygen. The applications must be of long duration and repeated four to fives times a day. This treatment does not exclude other remedies, and by prolonging the course of the disease, gains time for the surgeon to perform tracheotomy under favorable conditions.—*Italia Medica.*

Bran Baths.—Pape obtained two brilliant results prescribing tepid bran baths two to three times a day in cases of psoriaris idiopathica. Although this treatment does not always prevent return of the disease, yet it ought to be preferred so as to rapidly remove the affection.—*Med. Chir. Rundschau.—La Salute.*

Honor.—Professor Guido Baccelli, ex-Minister of Public Instruction of the Kingdom of Italy, and Director of the Medical Clinic in the University of Rome, has been nominated a member of the Academy of Medicine of Berlin.

The University of Vienna has a library which can contain a million of books. At present there are 725,000 volumes. The reading-room has 280 numbered chairs; 120 for law students, 80 for medical students, and 80 for the students of philosophy.

SELECTIONS.

THE PENNSYLVANIA ANATOMICAL ACT.

The medical profession in some of our States, and especially in Illinois, are taking active steps toward obtaining new anatomy acts. In view of this fact, and of the recent passage by the State legislature of Pennsylvania of a new act, it may be worth while to lay before our readers a brief sketch of the law and of its excellent working. In our issue for August 11, 1883, we published the full text of the law as proposed by the anatomists and enacted by the legislature.

It provides a State Anatomical Board composed of the professors and demonstrators of anatomy and of surgery of all incorporated medical and dental schools, and one representative from every such private school. This board shall distribute to each school, in proportion to the number of students in their anatomical and surgical classes, all unclaimed and unknown bodies, which would otherwise be buried at the public expense. Each school reports to the board, at stated times, its number of students as a basis of such distribution. In each county of the State unclaimed bodies may be delivered through the board to any physician in the county who complies with the provisions of the act as to filing a bond. Thus it legalizes dissection throughout the State, and affords facilities for anatomical study to those who could secure no such opportunity, except by leaving their practice and coming to Philadelphia. All bodies not so needed in each county are, at the expense of

the board, forwarded for use in the large schools, whose students come from all parts of the State.

This act has only been in operation practically since September, 1883, yet its good results are already apparent. To put such a law in operation in the many counties in the State and in numerous institutions, has required a large amount of labor and much patience and tact. Prejudice has in some cases only slowly yielded, but gradually the operation of the law is being extended over a larger area, and, as the figures will show, it is working most satisfactorily. The voluntary Anatomical Association, which preceded the present board, received and distributed in the year 1879-'80, 243 subjects; in 1880-'81, 222 subjects; in 1881-'82, 302 subjects; and in 1882-'83, 244 subjects. In the year ending April 1, 1884, there were received 283 subjects, but the law had then just begun to be enforced. In the first half of the present year there have been received in all 232 subjects. As the field of operation of the law is being gradually extended, it is fair to estimate that the supply for this year will reach at least a total of 400, and possibly even more. Even this number, however, is far too little for the wants of our great schools. The board, however, are gradually putting the law in working order in counties as yet unreached, and the supply will soon be adequate to all the demands of the schools for properly educating their students.

The Pennsylvania anatomy act has been proved by its working to be the best law in force in this country, and we are glad to learn that the profession in Illinois will endeavor to have substantially the same law passed. We bespeak for them all the help our readers can give them. They have gone to work in the right spirit, and with a systematic effort which deserves and should command success. Such a law is the only means to provide the physician with a knowledge of his funda-

mental study; and is the surest means of preventing desecration of graveyards—a crime which is so shocking to the moral sense of the entire community.—*The Medical News, Dec. 13th, 1884.*

LOCAL NEWS.

RUSH MEDICAL COLLEGE COMMENCEMENT.

The regular Annual Commencement exercises of the Rush Medical College, of this city, took place in Central Music Hall, on the afternoon of Feb. 17th, 1885.

The hall was well filled with an appreciative audience, and the ceremonies were of the usual formal and imposing character. The degrees were conferred by the President of the College, Professor J. Adams Allen, and the general valedictory address was delivered by Professor W. H. Byford. From the report of the Secretary of the Faculty, Professor J. H. Etheridge, we learn the whole number of students attending the past College term was 401, and the number on which degrees were conferred was 151; the length of the College term, a little less than five months.

SOCIETY PROCEEDINGS.

CHICAGO GYNÆCOLOGICAL SOCIETY.—*Interesting Case of Double Ovariotomy.* DR. E. C. DUDLEY.

Regular Meeting, Friday, Jan. 16th, 1885.—The President, Dr. H. P. Merriman, in the chair.

Dr. E. C. Dudley read a paper on an interesting and unusual case of double ovariotomy. The specimens were subsequently exhibited.

The patient, eighteen years old, unmarried, came to Mercy Hospital about eighteen months ago, to consult Dr. Dudley about marked abdominal enlargement. The diagnosis of monocystic tumor of the parovarium, or broad ligament, was made. The cyst was aspirated, and two gallons of fluid were removed. This fluid possessed the following characters: sp. gr., 1000.5; neutral reaction; limpid as water; odorless; colorless; on microscopical examination, no morphological constituents were detected; on chemical examination, certain mineral salts were found, but no albumen.

The patient experienced so much relief, after aspiration, that she left the hospital with the impression that she was permanently restored to health.

About three months ago she visited Dr. Dudley at his office. It was found that the cyst was partially refilled. An operation was determined upon.

The preparatory treatment of the patient,—apart from

tonics, the most nutritious of foods, frequent baths, and finally a Turkish bath, immediately preceding the day of operation, — consisted in the exhibition of remedies designed to increase the tonicity of the muscular coats of the intestines, and to expel all gases. For this purpose, the patient was given, two or three times daily, a mixture of columba, rhubarb and compound tincture of cardamom. In a case operated upon early in the autumn, Dr. Dudley had experienced much difficulty in the management of the intestines, which were distended with gas. In this case, subjected to the preparatory treatment just detailed, absolutely no difficulty in that direction was encountered.

The *mons veneris* was shaved, the vagina irrigated immediately before operation. The details of rigidly antiseptic surgery were observed with reference to the operating room, instruments, operator and assistants.

On Oct. 29th, Dr. Dudley, assisted by Dr. W. W. Jaggard, Dr. R. W. Bishop and Dr. W. E. Casselberry, performed ovariotomy, and removed both ovaries and tubes, together with a large monocyst of the left broad ligament. The pedicle of the large cyst was very vascular, and after transfixion with the passage of the ligature around each half, the operator was compelled to ligature *en masse* below the point of transfixion. The pedicle was afterwards seared above the Baker-Brown clamp with Paquelin's thermo-cautery.

Ether was employed as the anæsthetic.

The patient reacted well. At noon, two hours after operation, temperature 100.7°; pulse, 150; respiration, 20. She complained of nausea. At night, temperature, 100.8°; pulse, 115; respiration, 20; nausea continues; no tympanites.

Oct. 30th. Morning; temperature, 100.4°; pulse, 112; respiration, 20. Evening, temperature, 101°; pulse, 124; respiration, 20.

Throughout the day the patient moaned and tossed, complained of nausea, vomited incessantly. A peculiar talkative delirium ensued. Morphine and atropine were given to suppress vomiting; discontinued the atropine, fearing its cerebral action. Hot water, as suggested by Mr. Keith, was tried, with hope of checking nausea and vomiting, without success. The deodorized tincture of opium was substituted for morphia. The talkative delirium, nausea and vomiting continued unabated. The patient retained only a little ice water at long intervals.

Oct. 31st. Morning; temperature, 99.8°; pulse, 110; respiration, 20. Evening; temperature, 99.8°; pulse, 110; respiration, 20.

Nervous symptoms, greatly exaggerated; nausea and vomiting unabated; pain in the abdomen complained of at intervals. Codeia was substituted for the other opiates. Small quantities of milk and lime water, at intervals, were exhibited. The patient remained in the same condition. Talkative delirium, no sleep, nausea and vomiting, pain in the abdomen at intervals; no tympanites.

Nov. 1st. Morning and evening temperature, 99.7°; pulse, 106; respiration, 20. Talkative delirium, nausea, vomiting of bile,—the "mouth-filling" of Mr. Keith,—abdominal pain, no tympanites. She commenced to menstruate, or at least blood began to escape from the vagina.

Nov. 2d. Morning; temperature, 98.8°; pulse, 114; respiration, 18. Evening; temperature, 98.6°; pulse, 135; respiration, 21.

Nervous symptoms more distressing; nausea and vomiting continuing; patient becoming emaciated; face taking on a pinched, anxious expression. Valentine's beef juice exhibited; mustard to epigastrium; strychnia, in small doses; champagne; bisulphate of quinine, *per rectum*.

Nov. 3d. Morning; temp., 101°; pulse, 130. 10 A. M., temp., 101.2°; pulse 160. 10:30 A. M., temp., 101.6°; pulse, 178.

Persistence of wild, talkative delirium, nausea, vomiting, abdominal pain. The pulse, while very rapid, was not the feeble pulse of collapse. Dr. Dudley had one case of peritonitis following perforation of the posterior uterine wall, in Mercy Hospital, that died of septic poisoning, although the temperature did not rise above 100°.

With the aid of Dr. R. W. Bishop, Dr. Dudley etherized the patient, removed four or five stitches from the lower end of the abdominal incision, and inspected the cavity of the abdomen. The peritoneum was examined; no lymph was noticed; no gas in the intestines. The pedicles were not covered with lymph. A disinfected sponge, on a holder, was passed into the *cul-de-sac* of Douglas; about one-half of a fluid ounce of bloody serum was removed. This red stained fluid was odorless; it was not further examined. Feeling no good had been accomplished, the incision was reunited. This operation was performed at 10:30 A. M.

Temperature at 12 M., 101°; pulse, 150.
" at 2 P. M., 100°; pulse, 144.
" at 3 P. M., 100°; pulse, 135.
" at 7 P. M., 100°; pulse, 140.

Jactitation, wild delirium; nausea and vomiting; pain in the region of the coeliac axis; no tympanites. Rectal alimentation.

Nov. 4th. Morning; temperature, 100°; pulse, 135-150. Whisky, beef tea and milk at regular intervals; bisulphate of quinine *per rectum*. Persistence of the symptoms before detailed.

In the afternoon, the tongue was dry, cracked, ready to bleed; decidedly less nausea and vomiting. The nurse was directed to give the patient an enema of soap and water, with extract of ox-gall. One quart of this mixture was injected into the bowel. No evacuation of the contents of the rectum following, a tube was introduced, which was followed by that classi-

cal sign, the audible escape of flatus. Mr. Keith says that if the intestines have sufficient muscular energy to expel flatus, the prognosis becomes more favorable. It is probable a reversed peristalsis occurred, and the injection was entirely absorbed. One hour afterwards the tongue became moist. Evening temperature, 101°; pulse, 135.

Acting on the suggestion from the enema, one quart of strong beef tea was introduced into the bowel.

Nov. 5th. Patient evidently in better condition. Temperature, morning and evening, 98-99°; pulse, 120-130. One quart of strong beef juice was exhibited *per rectum*, and carried well up into the bowel. About three-fourths of this quantity was retained. Slight nausea and vomiting. Bowels were moved spontaneously, with evacuation of a large quantity of dark, tarry, fœtid fæces. The sutures, originally inserted, were removed.

Nov. 6. Morning; temp., 98.5°; pulse, 90.
Evening; " 98.1°; pulse, 115.

Bowels were again moved spontaneously, with evacuation of dark, tarry, fœtid fæces; all the symptoms of the patient assuming a favorable character. Beef-tea, whisky, quinine, and nutrient enemata continued. From this time on, the patient made an uninterrupted recovery. At the end of two weeks she was removed to St. Luke's Hospital. She is now in good health and pursuing her usual avocation.

In conclusion, Dr. Dudley called attention to the three following subjects, and requested that the discussion should be more particularly limited to their consideration..

I. *Preparatory Treatment of the Intestinal Tract.*—Is it possible to render the intestines manageable during an operation in the abdominal cavity by any dietetic or medical agencies? The escape of the intestines without the abdominal parietes

was a very distressing complication. The shock of the operation was increased, large vascular areas were rapidly cooled, notwithstanding the fact that they might be enveloped in warm, disinfected fabrics. It was not always easy to return the intestines to the cavity of the abdomen, and even then there was danger of strangulation. He was of the opinion that, in the case reported, the rhubarb, columbo and cardamom were active in restoring tonicity to the muscular coats, and in the expulsion of flatus.

II. *The Retention of Enemata.*—It was a matter of surprise to him that one quart of fluid exhibited *per rectum*, on three successive days, should be retained. He supposed that the liquid portions of the injections were absorbed at once, in consequence of the state of the tissues, resulting from exhaustion. The return of the tongue to a moist condition, within a very short space of time, immediately following the injection, was evidence in favor of this explanation.

III. *The Re-opening of the Abdominal Incision.*—Had it done any good? What produced the excessive nervousness? What was the cause of the nausea and vomiting?

The problem was an intricate one. It has been asserted that a very tight ligature around the pedicle can act as a reflex irritant. The sutures in the abdominal incision are sufficient, at times, to produce various obscure reflex symptoms. He had one case—his first case—in which uncontrollable vomiting yielded immediately upon the withdrawal of a rubber drainage tube.

It may have been that the case reported was just on the eve of recovery, when the abdomen was reopened.

The fluid removed was small in quantity, and without odor. The peritoneum, however, can secrete with wonderful rapidity, and then absorb the secretion. He had not examined the fluid microscopically or chemically. He had dusted into the *cul-de-*

sac a small quantity of iodoform. Whether *post hoc* or *propter hoc*, the patient recovered.

If it was a case of exhaustion, the beef, milk, and whisky deserved the credit. If a case of sepsis, the reopening of the incision was the potent factor. In answer to a question by Dr. Sawyer, Dr. Dudley said, that although the delirium of the patient was attended with visions of snakes, alcohol was out of the question, from his own knowledge of the habits of the patient. In answer to Dr. Merriman's question as to the preparation of the ligatures, Dr. Dudley said that silk thread was used exclusively for sutures and ligatures. This silk thread was boiled for ten minutes in 95 per cent. sol. carbolic acid; then for thirty minutes in 5 per cent. sol carbolic acid; finally it was deposited in a solution of the bichloride of mercury, one to four thousand.

Dr. Dudley then exhibited the specimens. The right ovary was slightly enlarged, and in the commencing stage of cystic degeneration. A cyst, about the size of a hickory nut was found in the right broad ligament. The left ovary was converted into a mass of fibrous tissue, about the size and shape of a kidney. Springing from the left parovarium or from the left broad ligament was the large monocyst, to which allusion has been made. This cyst, at the time of operation, contained about forty pounds of fluid.

Discussion.—Dr. Henry T. Byford thought that the reopening of the abdominal incision was unnecessary. Relief could not have come from the removal of such a small quantity of fluid as one-half fluid ounce. The improvement, immediately following the operation, was probably due to the stimulant effect of the ether. The delirium seemed to him to be that of alcohol or cerebral anæmia. He did not think that the symptoms of nausea and vomiting could be explained by any local irritant such as ligatures or sutures. It was a case of exhaus-

tion, cured by the judicious exhibition of beef, whisky and milk.

Dr. Edward Warren Sawyer said the patient owed her life to the persistent bravery of the operator, and congratulated him upon his success. He was surprised to hear that no albumen was detected in the aspirated fluid. Friedrichs says albumen is always present in such cases, but absent in echinococcus cysts.

Dr. Flavius M. Wilder said that egg albumen in water was frequently tolerated by the stomach when other matters were rejected.

Dr. W. W. Jaggard thought the secretory and resorptive functions of the peritoneum were matters of positive knowledge. Dr. Anton Wölfler, in a recent paper, has taken, substantially, Dr. Dudley's position. It is quite possible that the one-half fluid ounce of bloody serum, found in the *cul-de-sac*, represented the ultimate stage of resorption of a much larger quantity of fluid.

One-half fluid ounce of fluid, however, may contain enough sepsin or sufficient bacteria to produce the most fatal pyæmia. There is no quantitative relationship in regard to the virulency of certain poisons.

The mere reopening of the abdominal incision seems to act, under certain conditions, in a favorable manner. The reason is unknown. It is an empirical fact, acknowledged by a number of leading surgeons.

He thought Dr. Dudley deserved great credit for his action, in taking up the suggestion of numerous operators, when he knew positively no foreign body was contained within the abdominal cavity.

Dr. W. E. Casselberry wished to emphasize the importance of the preparatory treatment of the intestinal tract. He had been present at both of the operations, to which Dr. Dudley had referred, and was struck by the difference in the behavior of the intestines. The mixture employed by Dr. Dudley

resembled a favorite formula of the late Dr. Geo. B. Wood. This formula was advised for the expulsion of flatus and restoration of tone to the intestinal muscular walls.

Dr. D. T. Nelson said it was highly important to avoid the use of opium, when it was possible. The less opium, in general terms, the less the tendency to vomiting. As to the pedicle, he entertained grave doubts as to the propriety of passing the ligature *en masse*. In strangulated hernia, uncontrollable vomiting frequently resulted from the inclusion of omentum in the ligature. Would it not be better to open the pedicle, and pass a ligature around each vessel separately? He thought Bantock, Thornton and Spencer Wells advised the same treatment as in the securing of the vessels in an amputated leg.

Dr. Sawyer said he had seen Dr. John E. Owens remove a testicle; following the passage of the ligature around the cord, uncontrollable vomiting occurred.

The reopening of the abdominal incision was looked upon with too much fear. He had been present at an operation in which all the blood had not been removed from the *cul-de-sac*; the patient died of septicæmia. At the autopsy, Douglas's pouch was filled with blood. An operation might have saved life. Another case in point, was one of normal, double ovariotomy. After the operation, the patient sank rapidly. The operator concluded the patient was suffering from internal hæmorrhage. Twelve hours later, the abdominal incision was reopened, and after two hours search the bleeding vessels were secured. The patient recovered.

Dr. H. P. Merriman endorsed Dr. Dudley's reopening of the abdominal incision in the case presented.

In regard to the preparatory treatment of the intestinal tract, he was not certain that the exhibition of columbo, rhubarb, and cardamom had produced the favorable result in the one case, nor that the neglect of preparatory treatment was opera-

tive in the troublesome condition in the other. He did not think the opium was the cause of the vomiting, since the nausea disappeared while the patient was still under the influence of opiates.

He did not think the ligature *en masse* or the clamp could be replaced by the method suggested by Dr. Nelson. The danger from hæmorrhage was too great. It was an admirable subject for study. If the pedicle was complely destroyed the danger of pinching nerve filaments would be less.

The quantity of fluid removed after reopening the incision was not sufficient to account for the improvement in symptoms.

Dr. Nelson referred to the compression forceps, and ligature placed above, as designed to obviate the inclusion of nerves, still sensitive.

Dr. Dudley closed the discussion. The mere opening of the abdomen seemed to act in a remarkable manner under certain conditions. Tubercle of the peritoneum, papilloma of the omentum, were pathological states which had been influenced favorably by the procedure.

Cocculus indicus is supposed to have the same effect to prepare the intestinal tract as the mixture exhibited.

It was not necessary that a discharge should have a foul odor or be large in quantity, in order to be capable of producing pyæmia.

The Society adjourned to meet at the Palmer House, as the guests of Dr. Sawyer and Dr. Jaggard, on Friday evening, 20th Feb., 1885. Dr. Christian Fenger will present a report of the result of his anatomical investigations of Professor Byford's "Two cases of mural pregnancy."

Dr. H. T. Byford will read a paper on "The Functions of the Membranes in Labor."

The inaugural thesis of Dr. Chas. Caldwell on "Two Interesting Cases in Obstetrics" will be discussed.

W. W. JAGGARD, *Editor*,

Jan. 19th, 1885. 2330 Indiana ave.